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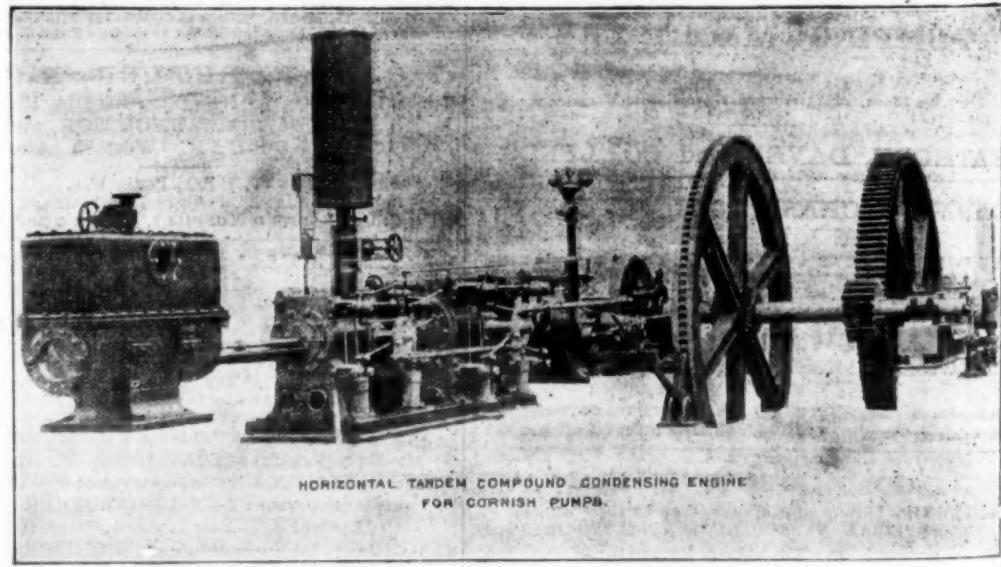
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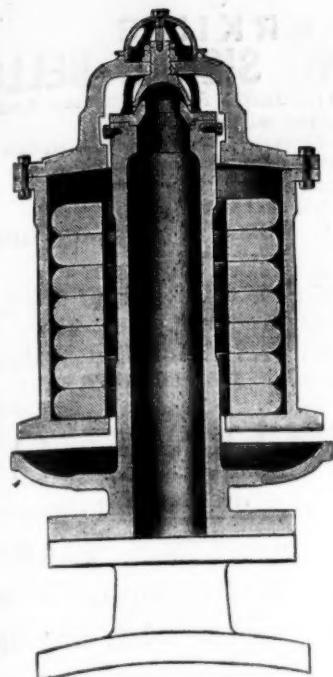
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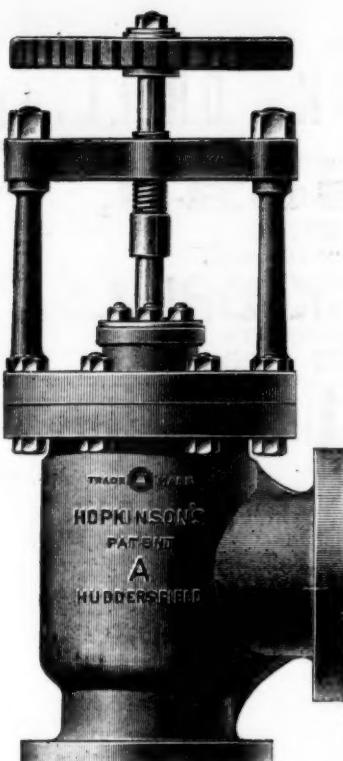
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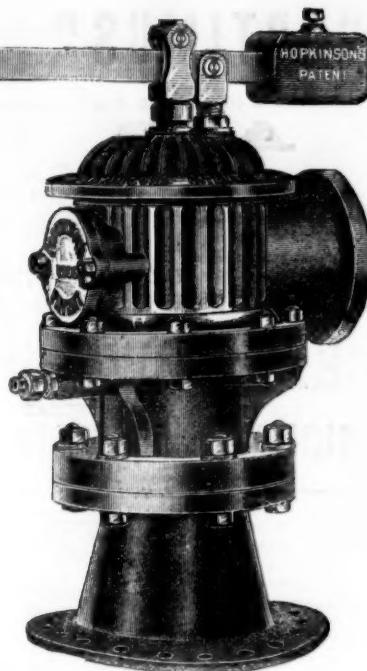
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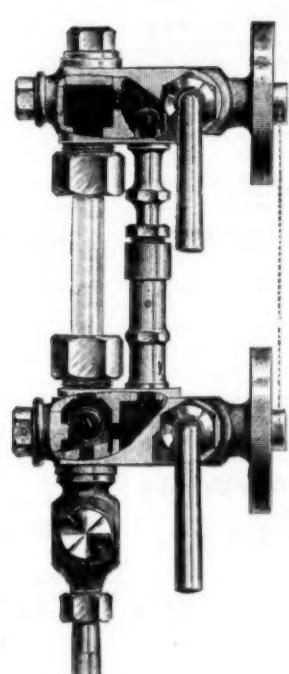
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FIG. 100.



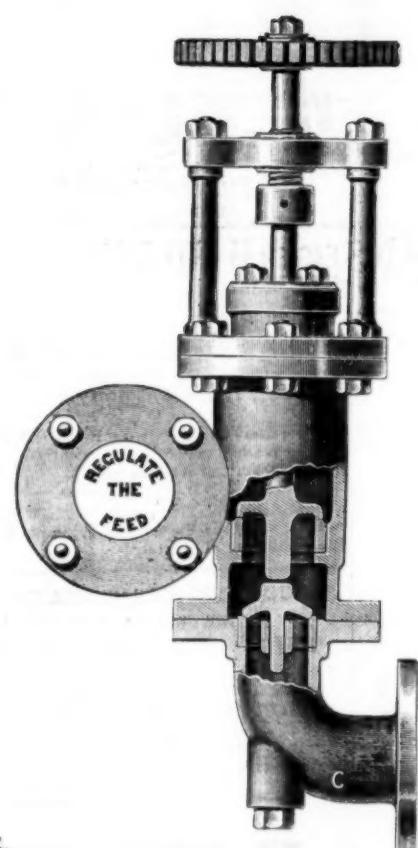
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FIG. 10.



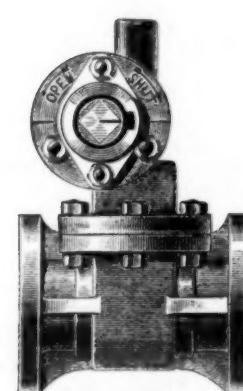
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FIG. 644.



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FIG. 132.



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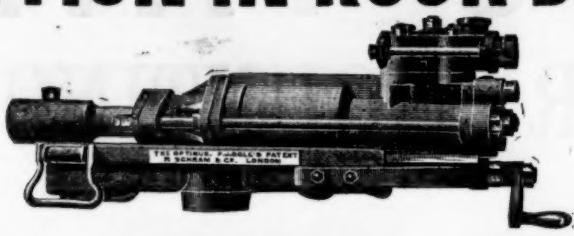
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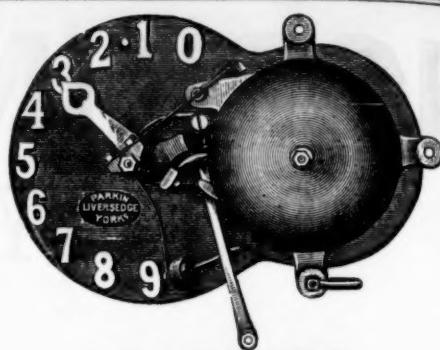
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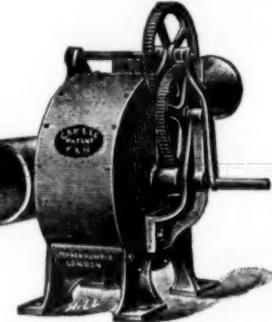


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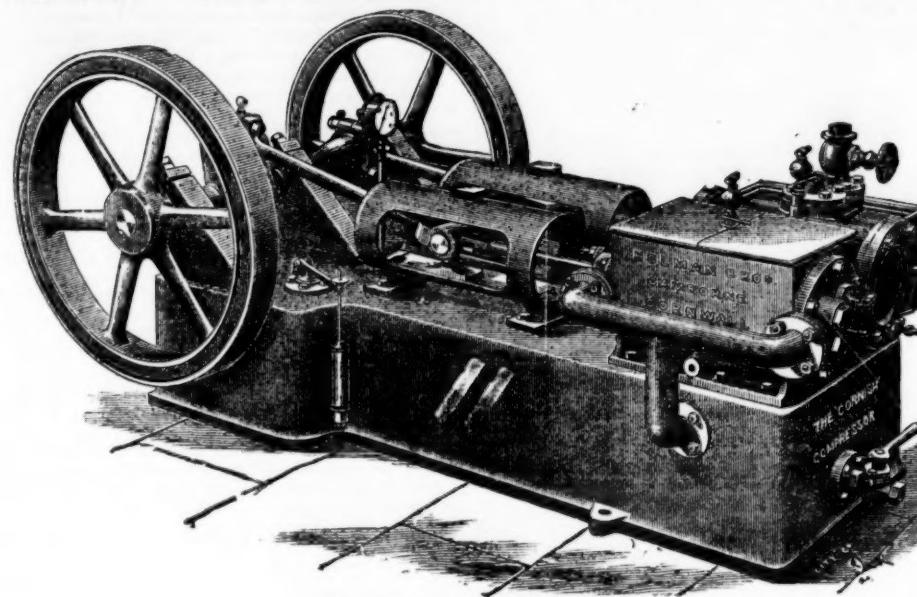
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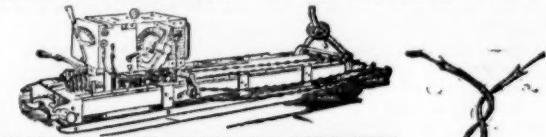
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## NEW PATENTS.

LIST OF APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 1884 Thomas Parker and John Pulman, 65, Chancery Lane, London.—Improvements in extracting zinc from mixed sulphide ores and the like.—September 9.
- 1884 Thomas Parker and John Pulman, 65, Chancery Lane, London.—Improvements in the extraction of gold and other metals from refractory ores.—September 9.
- 1885 George Edward Moore, 53, Chancery Lane, London.—Improvements in the permanent way of railways.—September 9.
- 1887 Arthur Crooke, Tredington, near Gloucester.—An improved method of calcining the ore or stone in the blast furnace.—September 12.
- 1882 Bertrand Chase Hutton, 57, Chancery Lane, London.—Improved process and apparatus for extracting gold from ores and other auriferous substance.—September 12.
- 1892 John Edlington Chaster, 131, Fleet Street, London.—Improvements in extracting gold and platinum from ores or substances containing the same.—September 16.
- 1892 William Augustus Pitt, 6, Lord Street, Liverpool.—Improvements in and relating to steam and other engines.—September 16.
- 1893 James Devonshire, 79, Chancery Lane, London.—Improvements in electric locomotives.—September 16.
- 1892 Caleb Crane Pruden, 57, Barton Arcade, Manchester.—Improvements in or connected with water-tube steam boiler and furnaces therefor.—September 16.
- 1892 George Edward Smith, 29, Chancery Lane.—An improved machine for bending railway and other rails.—September 16.
- 1701 Ernst Storch, 45, Southampton Buildings, Chancery Lane, London.—Improvements relating to the coating of iron surfaces and the like.—September 11.
- 1702 Emil Laurence Oppermann, Ewald Fischer, and Carl Tunstall John Oppermann, 27, Martin's Lane, Cannon Street, London.—An improved process for effecting the amalgamation of gold and the like metals in ores.—September 12.
- 1704 Joseph Barrios Torres, 17, St. Ann's Court, Wardour Street, London.—Improvements in extracting gold, silver, and other metals from ores and the like.—September 12.
- 1704 Harry Wormald, 8, Quality Court, Chancery Lane, London.—Improvements in or connected with pistons and gland packings.—September 12.
- 1702 Gustav Leniz, 40, Chancery Lane, London.—Improvements in sanding apparatus for locomotives.—September 12.

### SPECIFICATIONS PUBLISHED.

1895, Trickett, cutting circular holes in iron, &c., 1894; 16169, Brown, tubular boilers, 1894; 17240, Love, treating molten iron or steel, 1894; 17983, Allison, iron, &c., stamp, 1894; 18592, Sulman and Tread, extracting precious metals, 1894; 20320, Williamson and others, furnaces, 1894; 21232, Henry, railroads and sleepers, 1894; 1330, Jensen, furnaces, 1895; 6154, Bachy, furnaces, 1895; 12736, Gilbert, steam boilers, 1895; 12833, Stoney, railway sleepers, 1895.

The above specifications published may be had of Messrs. Rayner and Co., 37, Chancery Lane, London, at 10d. each, including postage.

## JOINT-STOCK COMPANIES.

### NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

- South African Territories (Limited).—Registered September 11, by Peke and Vuille, 25, Grosvenor Street, E.C. Capital £500,000, in £1 shares. Objects: To acquire from the Kharaschans Exploring and Prospecting Syndicate (Limited) certain mining rights, &c., connected therewith, situated in Great Manasqualand and elsewhere, in the South African Republic; with a view to the above objects to adopt and carry into effect an agreement entered into between E. D. Opport and Company of the one part and this company of the other part; to develop and turn to account the above-mentioned property and to carry on the business of a mining, milling, smelting, and metallurgical company in all or any of its branches.
- Great Buninyong Estate Gold Mining Company (Limited).—Registered September 17, by Law, Bruce, Wadron, and Webster, 14, Old Jewry, E.C. Capital £10,000, in £1 shares. Objects: To acquire the property known as the Great Buninyong Estate Gold Mining Property, situated in the Colony of Victoria, Australia, the said property consisting of sub-soil under about 32 acres, held under a Crown mining lease for 5 years from February 4, 1889, and surface land of about 3½ acres, held under the regulations of the Mining Act, 1890 (Colony of Victoria); to develop and turn to account the same, and to carry on the business of a mining, milling, smelting, and metallurgical company in all its branches.
- Waterfall Prospecting Company (Limited).—Registered September 11, by Birchall, 5, Grosvenor Street, E.C. Capital £10,000 in £1 shares. Objects: To acquire any concessions, lands, estates, properties, mines, mining, water, and other rights, leases, claims, trading grants, &c., in South Africa, or elsewhere; to develop and turn to account the same, and to carry on the business of a mining and smelting and general trading company in all its branches.
- Klerksdorp Reefs (Limited).—Registered by September 11, by B. Barnett, 6, Henrietta Street, Covent Garden. Capital £1,000, in £1 shares. Objects: To acquire certain mining claims (48 in number) situated on the Farm Elandsdal, Klerksdorp Gold Fields, South Africa Republic, and numbered 1013 to 1024 and 596 to 721, all inclusive; to develop and turn to account the same, and to carry on the business of a mining, milling, and smelting company in all its branches.
- Freeman Cohen Consolidated (Limited).—Registered September 14, by Ingles, Holmes, and Sons, 20, Threadneedle Street, E.C. Capital £1,000,000, in £1,000,000 shares of £1 each. Objects: To adopt and carry into effect an agreement between it Freeman Cohen of the one part and this company of the other part; to acquire any diamond, gold, silver, copper, &c., or other minerals, mining, water, and other rights, grants, leases, claims, options, concessions, metalliferous land, &c.; to develop, work, and generally turn to account the same, and to carry on the business of a mining, milling, smelting, farming, and metallurgical company in all or any of their respective branches.
- African Contracts Corporation (Limited).—Registered September 17, by Dix and Warlow, 16, Serjeant's Inn, Fleet Street, E.C. Capital £10,000, in £1000 shares. Objects: To seek for and secure openings for the employment of capital in Africa or elsewhere, to acquire any farms, lands, mines, mining, water, and other rights, grants, leases, claims, concessions, options, metalliferous land, &c.; to develop and turn to account the same in such manner as the company shall see fit, and to carry on the general business of a mining, milling, smelting, and metallurgical company in all or any of its branches.

## CONTRACTS OPEN:

FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.

\* We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

### HOME CONTRACTS.

Precipitating Tanks, October 7 (Glasgow).—For the construction of precipitating tanks, sludge tanks, creosote buildings, and for other works in connection therewith, for the Corporation. Drawings may be seen, and copies of the specification, quantities, term of tender, and agreement on sight, and on and after 3rd inst., at the office of the engineer, Mr. J. T. Wood, M.I.C.E., 3, Cook Street, Liverpool, and 3, Alexandra Street, Cambridge. Sealed tenders, endorsed "Tender for Precipitating Tanks, Glasgow," Buildings &c., Contract No. 7, to be delivered at the office of Mr. J. E. Whitehead, Town Clerk, Glasgow, on Friday 3rd inst., at 12 noon, or earlier if required.

Water Works, October 7 (Kells Island).—For the construction of water works to supply the town of Kells with water, for the Town Commissioners. The works comprise the construction of service reservoir, filter bed, pump house, and turbine pit, with the supply of turbines and pumps, leads in turbines and tail race, and the laying of several miles of 5 inch, 4½ inch, and 3½ inch pipes, with all valves, hydrants, and fountains, &c. Plans and specifications can be seen, and a general plan of the scheme, together with copy of quantities, can be obtained upon payment of £1 10s. 0d. (which will not be returned) either at the office of the engineer, Mr. J. H. H. Swaine, M.I.C.E., Avenue Chambers, Belfast, or at the office of Mr. James J. Brady, Town Clerk, Town Hall, Kells. Tenders to be delivered in sealed envelopes, marked "Tender for Water Works," and addressed Chairman, Town Commissioners, Kells, co. Meath, by 12 noon on October 7.

Pipes, &c., October 8 (Southampton).—For manufacturing and delivering in Southampton (1) certain cast-iron pipes and special castings; (2) certain sluice-valves, hydrants, and surface boxes; and (3) the cutting, laying, fitting, and completion of certain lines of pipes, the fixing of valves and hydrants, and other work connected therewith, for the Corporation. Drawings may be seen, and specifications, conditions, and forms of tender obtained from Mr. W. Matthews, Waterworks Engineer, Southampton, upon payment of £1 10s. 0d. each copy, which will be returned upon receipt of a bona fide tender. Separate sealed and endorsed tenders must be left at the office of Mr. G. G. B. Naylor, Town Clerk, Municipal Office, Southampton, b two p.m. on October 8. The contractors will be required to pay their own expenses the standard rates of wages recognised in the various trades at the date of the contract.

Lamp Columns, October 8 (Bedford).—For the supply and delivery of 200 cast-iron lamp columns, carriers, and globes, for the Electric Lighting Committee, in accordance with plans and specifications, a copy of which can be obtained at the office of Mr. T. S. Porter, clerk, Town Hall, Bedford.

Coal, October 8 (Norwich).—For the supply of about 3000 tons of steam coal in trucks or barges at Trowse, Norwich, for the Sewerage and Irrigation Committee of the Norwich Corporation. Specification and form of tender may be obtained on application to Mr. Arthur M. Collins, A.M.I.C.E., city engineer, Guildhall, Norwich.

## MR. BETTEL ON CYANIDE SOLUTION.

## DETERMINATION OF STRENGTH.

**A**T the monthly meeting of the Chemical and Metallurgical Society, the following paper by Mr. Bettel was taken as read:—

For some time past I have felt the need of some quick method of analysis, which would in a reasonable time give the composition of working cyanide solutions, so that the chemist-in-charge or the foreman in a cyanide works could trace to its source any irregularity in the working of such solutions, with a view to its correction. After many fruitless trials, I have pleasure in drawing your attention this evening to some volumetric processes which, although not all that could be desired, are still sufficiently accurate to be used for technical work, and have this advantage—that the work may be performed by men who have not had the advantage of a technical or scientific training. I do not lay claim to any novelty in this analytical process; it is merely pieced up from well known analytical methods and chemical reactions. But, nevertheless, I hope it will be useful to those of our members who have to examine cyanide solutions.

It is necessary to state at the outset that my remarks have reference to the MacArthur-Forrest working solutions containing zinc, an element which complicates the analysis in a truly surprising manner. Before dealing with the analysis proper, I will draw your attention to the peculiarities of a solution of the double cyanide of zinc and potassium usually written  $K_2ZnCy_4$ . As is stated in works on chemistry, this cyanide is alkaline to indicators. Now, here lies the peculiarity. To phenolphthalein the alkinity is tested by N-10 acid is equal to 19.5 parts of cyanide of potassium out of a possible 130.2 parts. With methyl-orange the whole of the metallic cyanide may be decomposed as under:—

$$K_2ZnCy_4 + 4HCl = ZnCl_2 + 2KCl + 4H Cy$$

with nitrate of silver solution the end reaction is painfully indefinite. If caustic alkali in excess (a few c.c. of normal soda) be added to such a solution, together with a few drops of potassic iodide, the silver solution will indicate sharply the total cyanide present in the double cyanide, even in presence of ferro-cyanides. If to a solution of potassic zinc cyanide be added a small quantity of ferro-cyanide of potassium, and the silver solution added, the flocculent precipitate of what I suppose to be normal zinc ferro-cyanide ( $Zn_2FeCy_4$ ) appears, and the end reaction is fairly sharp and indicates 19.5 parts of cyanide of potassium out of the actual molecular contents of 130.2 KCy. If, however, an excess of ferro-cyanide be present, the flocculent precipitate does not appear, but in its place one gets an opalescence which speedily turns to a finely granular (sometimes slimy) precipitate of potassic zinc ferro-cyanide  $K_2Zn_2Fe_2Cy_4$ . This introduces a personal equation into the analysis of such a solution, for if the silver solution be added rapidly, the results are higher than if added drop by drop, as this ferro-cyanide of zinc and potassium separates out slowly in dilute solutions alkaline or neutral to litmus paper.

This ferro-cyanide is decomposed by—

- (a) Potassic, sodic, or calcic cyanide, &c.
- (b) Potassic or sodic hydrate.
- (c) Potassic or sodic carbonate,

as shown by the following equations:—

(a)  $K_2Zn_2Fe_2Cy_4 + 12KCy = 2K_2FeCy_4 + 3K_2ZnCy_4$ . This is proved by mixing solutions of potassic zinc cyanide with one of potassic ferro-cyanide; no precipitate occurs. Potassic zinc ferro-cyanide is dissolved by cyanide solution.

(b)  $K_2Zn_2Fe_2Cy_4 + 12KH_2O = 2K_2FeCy_4 + 3Zn(OH)_2 + 6H_2O$ .

Potassic zinc ferro-cyanide is readily dissolved by caustic alkali. If potassic (or sodic) zinc oxide in solution be added to potassic ferro-cyanide no precipitate occurs, even in absence of free alkali.

(c)  $K_2Zn_2Fe_2Cy_4 + 12Na_2CO_3 + 6H_2O = 2K_2Na_2Fe_2Cy_4 + 12NaHCO_3 + 3Zn(NaO)_2$ .

This is similar to the (b) reaction, with the difference that carb-nates are converted into bi-carbonates.

I will now draw your attention to the equations involved in the reaction previously described. As the percentage of alkalinity is definite, and consists of a portion of potassic cyanide loosely combined with zinc cyanide more firmly united with less cyanide than corresponds with  $K_2ZnCy_4$ . I venture to propose for provisional adoption the following equations representing the neutralising of  $K_2ZnCy_4$  by acid and silver nitrate respectively:—

(a)  $10K_2ZnCy_4 + 3HCl = 3HCl + KCl + (ZnCy_4)_{10} (KCy)$ .

(b)  $20K_2ZnCy_4 + 3AgNO_3 + 3KAgCy_4 = 3KNO_3 + 2(ZnCy_4)_{10} (KCy)$ .

Here is a point for investigation as to whether there is more than one definite, crystallisable salt containing  $K_2Zn + Cy_4$ , neutral to phenolphthalein, and soluble in water, or whether  $ZnCy_4$  is soluble in a solution of  $K_2ZnCy_4$ , and produces neutrality to phenolphthalein.

For the estimation of free hydro-cyanic acid I have made use of Siebold's ingenious method for estimating alkalies in carbonates and bi-carbonates, by reversing the process, adding bi-carbonate of soda, free from carbonate, to the solution to be titrated for hydrocyanic acid and free cyanide. This is the one instance where hydrocyanic acid turns carbonic acid out of its combinations, and as such is interesting.

$2KH_2CO_3 + AgNO_3 + 2HCy = KAgCy_4 + KNO_3 + 2CO_2 + 2H_2O$ .

I will now proceed to describe the method of analysis:—

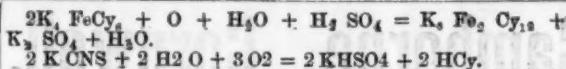
1. FREE CYANIDE.—50 c.c. of solution is taken and titrated with silver nitrate to faint opalescence or first indication of a flocculent precipitate. This will indicate (if sufficient ferro-cyanide be present) to form a flocculent precipitate of zinc ferro-cyanide) the free cyanide and cyanide equal to 7.9 per cent. of the potassic zinc cyanide present.

2. HYDROCYANIC ACID.—To 50 c.c. of the solution add a solution of bi-carbonate of potash or soda, free from carbonate or excess of a basic acid. Titrate as for free cyanide. Deduct the first from the second results =  $HCy$ ; 1 c.c.  $AgNO_3 = 0.0414$  p. cent.  $HCy$ .

3. DOUBLE CYANIDES.—Add excess of normal soda (caustic) to 50 c.c. of solution and a few drops of a 10 per cent. of  $K_2O$ . Titrate to opalescence with  $AgNO_3$ . This gives 1, 2, and 3, Deduct 1 and 2 =  $K_2ZnCy_4$  as  $KCy$  less 7.9 per cent.

A correction is here introduced. The  $KCy$  found in 3 is calculate to  $K_2ZnCy_4$ . Factor:  $KCy$  (as  $K_2ZnCy_4$ )  $\times 0.9493 = K_2ZnCy_4$ . Add to this 7.9 per cent. of total; or for every 92.1 parts  $K_2ZnCy_4$ , add 7.9 parts. If this fraction calculated back to  $KCy$  be deducted from 1, we get the true free cyanide (calculated to  $KCy$ ).

4. FERROCYANIDES AND SULPHOCYANIDES.—In absence of organic matter, I have found that an acidified solution of a single cyanide, such as  $KCy$ , or of a double cyanide (as  $K_2ZnCy_4$ ) (i.e. solution of  $H Cy$ ) is not affected by dilute permanganate. On the other hand acidified solutions of ferro-cyanides and sulphocyanides are rapidly oxidised, the one to ferro-cyanide, the other to  $H_2SO_4 + HCy$ .



If now the ferrocyanogen is removed as Prussian blue, by ferric chloride in an acid solution, the filtrate will contain ferric sulphocyanide and hydric sulphocyanide, both of which were oxidised by permanganate as if iron were not present. By deducting the smaller from the larger result we get permanganate consumed in oxidising ferro-cyanide, the lower result = permanganate consumed in oxidising sulpho-cyanide.

The method of analysis is as follows (in presence of zinc):—A burette is filled with the cyanide solution for analysis, and run into 10 or 20 c.c. N-100  $K_2MnO_4$ , strongly acidified until colour is just discharged with  $H_2SO_4$ . Result not-d (a).

A solution of ferric sulphate or chloride is acidified with  $H_2SO_4$  and 50 c.c. of the cyanide solution poured in. After shaking for about half a minute the Prussian blue is separated from the liquid by filtration and the precipitate and filter paper washed. The filtrate is next titrated with  $K_2MnO_4$  N-100 (b).

Let c = cc. permanganate required to oxidise ferro-cyanide. Then a-b=c.

$$(c) 1 c.c. N permanganate = 0.03684 gramme$$

$$(b) 1 c.c. N permanganate = 0.001618 gramme$$

$$100 \quad K_2FeCy_4$$

$$(b) 1 c.c. N permanganate = 0.001618 gramme$$

$$100 \quad K_2CNS$$

5. OXIDISABLE ORGANIC MATTER IN SOLUTION.—In treating spruit tailings, or material containing decaying vegetable matter, I offer the following method for testing coloured solutions:—

(a) Prepare a solution of a sulphocyanide, so that 1 c.c. sulphocyanide = 1 c.c. N

$$K_2MnO_4$$

(b) To 5 c.c. solution add sulphuric acid in excess, and then a large excess of permanganate N. Keep at  $60^\circ C$ . 70°

$$100 \text{ c. for the hour. Then cool}$$

and titrate back with the  $K_2CNS$  solution.

Result O required to oxidise organic matter

$$\begin{matrix} " & " & K_2FeCy_4 \\ " & " & K_2CNS \end{matrix}$$

After estimating  $K_2CNS$  and  $K_2FeCy_4$ , a simple calculation gives the oxygen to oxidise organic matter. This result multiplied by 9 will give, approximately, the amount of organic matter present.

#### 6. ALKALINITY:—

Potassic cyanide acts as caustic alkali when neutralised by an acid; the end reaction, however, is influenced to some extent by the hydrocyanic acid present, and is, therefore, not sharp. We can, however, estimate by—

$$N10 - KCy 100 \text{ p.c. by phenol-phthalein.}$$

$$7.9 \text{ p.c. of } K_2ZnCy_4 \text{ by phenol phthalein.}$$

$$100 \text{ p.c. of } Zn \text{ by methyl-orange.}$$

$$K_2ZnO_4 (\times H_2O) 100 \text{ p.c. by methyl-orange.}$$

$$K_2O \text{ contained in above by phenol-phthalein.}$$

It will be necessary to point out the decompositions which result from adding alkali, or a carbonate of an alkali, to a working solution containing zinc.

$$K_2ZnCy_4 + 4KHO = K_2ZnO_4 + 4KCy.$$

$$K_2ZnCy_4 + 4Na_2CO_3 + 2H_2O = 2KCy + 2NaCy + Na_2ZnO_4 + 4NaHCO_3.$$

Bicarbonates have no action upon potassic or sodic-zinc cyanide.

Potassium—or sodio zinc oxide (in solution as hydrate) acts as an alkali towards phenol-phthalein and methyl-orange.

$$K_2ZnO_4 + 4HCl + 2KCl + ZnCl_2 + 2H_2O.$$

Calcic and magnesia hydrates decompose the double salt of  $K_2ZnCy_4$  to some extent, so that it is possible to find in one and the same solution a considerable proportion of alkalinity towards phenol-phthalein due to calcic-hydrate in presence of  $K_2ZnCy_4$ .

The total alkalinity as determined by N-10 acid methyl-orange gives, in addition to these before mentioned, the bicarbonates. If carbonates or bicarbonates are present, it follows as a matter of course that if bicarbonates and zinc double cyanide are present in a solution, and lime, or lime and magnesia, be added, that the percentage of free cyanide will increase, and the zinc remain in solution as zinc sodic oxide.

7. FERRO-CYANIDE ESTIMATION.—This is effected by allowing sodium amalgam to act for 15 minutes on the solution in a narrow cylinder, then estimating the ferro-cyanide formed by permanganate in an acid solution. Deduct from the results obtained the ferro-cyanide and sulpho-cyanide previously found, i.e. N-100 permanganate = 0.03293 gramme  $K_2FeCy_4$ .

SULPHIDES.—It rarely happens that sulphides are present in a cyanide solution, if present, however, shake up with precipitated carbonate of lead, filter, and titrate with permanganate N-100.

The loss over the previous estimation (of  $K_2FeCy_4$ :  $KCNS$ , &c.) is due to elimination of sulphides.

$$1 \text{ c.c. N-100 } K_2MnO_4 = 0.0017 \text{ grammes } H_2S$$

$$\text{or } 1 \text{ c.c. } " = 0.0055 \text{ " } K_2S$$

the hydrogen alone being oxidised by dilute permanganate in acid solution where the permanganate is not first of all in excess.

9. AMMONIA.—If sufficient nitrate of silver be added to a solution (say 10 c.c.) to wholly precipitate the cyanogen compounds and a drop or two of normal hydrochloric acid be added in addition, the whole made up to 100 c.c. and shaken, then filtered, and 10 c.c. filtrate distilled with 150 c.c. water from a tubulated flask and the steam condensed in a Liebig's condenser (glass) the ammonia coming over may be readily estimated by colour test with Nessler solution, and comparison with distilled water free from ammonia and standard ammonic chloride solution, containing 0.1 milligram per litre treated with Nessler solution.

Then 10 c.c. taken diluted to 100.

$$10 \text{ " } 100 \text{ c.c. and 1 c.c. original,}$$

$$= 1000 \text{ milligrams, then every 1 c.c. standard solution of ammonic chloride taken } = 0.01 \text{ per cent. N H}_3.$$

UREA OXAMIDE AND FORMATES.—I am still investigating a method for the determination of these substances.

Although these reactions and processes take some time in describing, the whole of the operations can be performed within one hour, and once the operator has a practical knowledge of the process, the results provided he is sure of the accuracy of the titre of his stock solutions, are most accurate. Most valuable information can in this way be obtained. I give a few instances of the analysis of working solutions:—

1. Solution (originally  $KCy$ ) in contact with clean pyrites from Robinson concentrates for 28 months with a limited supply of air:—

Potassic ferro-cyanide equal to 77 per cent.

Potassic sulpho-cyanide equal to 14 per cent.

Potassic cyanide equal to 0.05 per cent.

Potassic carbonate equal to 33 per cent.

Potassic formate present, but not estimated.

Ammonia equal to 21 per cent.

Sulphides absent.

Sulphates considerable; not estimated.

2. Solution from treating dry crushed Robinson Gold Mining Company's ore without addition of neutralising agents after passing through zinc box:—

Potassic cyanide equal to 0.085 per cent.

Potassic zinc-cyanide equal to 0.25 per cent.

Potassic zinc-hydrate equal to 0.15 per cent.

Potassic ferro-cyanide equal to 0.074 per cent.

Potassic sulpho-cyanide equal to 0.004 per cent.

Potassic bicarbonate equal to 0.566 per cent.

Ammonia equal to 0.008 per cent.

3. As above, but with use of lime, not passed through zinc box:—

Potassic cyanide 0.24 per cent. (original 0.3 per cent.).

Potassic ferro-cyanide, trace.

Potassic ferri-cyanide 0.033 per cent.

Potassic sulpho-cyanide 0.008 per cent.

Ammonia 0.003 per cent.

Calcic hydrate 0.067 per cent.

4. As in No. 2, but with lime in small quantity, after passing zinc box:—

Potassic cyanide 0.23 per cent. (original 0.45 per cent.).

Hydrocyanic acid 0.04 per cent.

Potassic zinc-cyanide 0.154 per cent.

Potassic ferro-cyanide 0.059 per cent.

Potassic sulpho-cyanide 0.004 per cent.

Potassic sulphide nil.

## THE WHITE PHOSPHATES OF TENNESSEE.

By CHARLES WILLARD HAYES, Washington, D.C.

(Concluded from Page 1143.)

### II.—White Bedded Phosphate.

**L**OCATION OF THE DEPOSIT.—So far as at present known, this variety is confined to a small area in Perry county. It has been found on Red Bank and Terrapin creeks, which flow eastward into Buffalo river. The extreme outcrops lie within an area about three miles long by a little over a mile broad. Within this area numerous outcrops occur though the rock has not been traced continuously from one to another, and it is only inferred that they form a continuous bed.

The northward dip of the strata carries the Devonian down to the level of Buffalo river, above the mouth of Red Bank creek, so that the intersected plateau is here composed wholly of the lower portion of the Carboniferous, which consists mostly of chert in calcareous, sandy shale.

The phosphate is found about 70 feet above the Devonian black shale, interbedded with the Carboniferous chert. At the Spencer place, on Red Bank creek, the phosphate and chert crop out in a ledge about 20 feet high, above which occur numerous though not continuous exposures, making a total thickness of at least 30 feet. Of this, the lower 20 feet consists of alternate beds of phosphate and chert. The latter appears in lenticular beds, from 4 to 12 inches thick, its contact with the phosphate being somewhat indistinct. Portions of the phosphate are highly siliceous, approaching chert in appearance and probably in composition. The appearance is that of an incomplete replacement of the chert by the phosphate. According to an approximate estimate of this portion of the formation, the chert beds appear to make up about 30 per cent. of the mass, the remainder being more or less siliceous phosphate.

The upper 10 feet, although not so well exposed, appears to be made up almost entirely of obscurely bedded phosphate, without any considerable portion of chert. The phosphate in this part of the formation is also whiter, softer, and evidently less siliceous.

In Stone Quarry Hollow, on the south side of Terrapin creek, the phosphate is exposed about 40 feet in thickness. As upon Red Bank creek, the lower portion consists of alternating beds of stony chert and hard siliceous phosphate, while the upper portion, perhaps 10 or 15 feet in thickness, is free from chert beds, or, if present, they do not appear at the surface.

At the Myatt place, on Terrapin creek, the formation is at least 30 feet in thickness, but the bedding is less distinct than at the points above described, and there does not appear to be marked a difference between the upper and the lower portion, although this may be due to less complete exposure.

**P**hysical Appearance.—The phosphate rock is much harder than ordinary lime phosphate, and breaks with an extremely rough, irregular surface. It has a finely granular structure, some portions resembling a very fine quartzite sandstone, but grading into translucent chert. The patches of gray chert surrounded by the white granular rock give a mottled appearance to the fresh surfaces. The chert is not in the form of sharply-defined fragments, such as occur in the phosphatic breccia, but merges into the granular ground mass, which consists of a skeleton of silica, holding soft, white lime phosphate. It is the presence of this siliceous skeleton which gives the apparently granular material its great hardness. Many small, irregular cavities occur in the rock, and these are generally lined with minute quartz crystals. Thin sections of the phosphatic rock exhibit under the microscope a more or less continuous ground mass of chalcedonic or crypto-crystalline silica. This is only slightly crystalline, having very little double refraction. Within this ground mass are rhombohedral crystals of lime phosphate. In portions of the rock, which appear as compact chert, the crystals are very minute (often less than .007 millimetre in diameter) and widely scattered; but they are perfect, sharply-defined rhombohedrons. In the granular portions of the rock the crystals are larger, appearing as sections of rhombohedrons, which are not perfectly independent, but are segregated into irregular groups, surrounded and penetrated by the ground mass of silica. These rhombohedral crystals have the external form of calcite, but are entirely isotropic, and hence are not calcite. The smaller crystals are quite clear and transparent, while the larger are composed of an aggregate of very minute transparent grains, with fine dust-like opaque particles, probably iron oxide. Many aggregates of similar transparent grains, but without definite crystal outlines, occur in the ground mass. Analyses of the rock make it evident that the materials forming the crystals and the granular aggregates must be lime phosphate. The crystal forms are evidently those of calcite, and the crystals are, therefore, in all probability pseudomorphs, in which the lime phosphate has replaced the carbonate. The presence of a small amount of carbonate, shown in the table of chemical analyses below, indicates that the replacement has not been complete.

**C**hemical Composition.—The following analyses\* give a fair idea of the composition of this variety of phosphate:—

#### ANALYSES OF TENNESSEE WHITE BEDDED PHOSPHATE.

	14e.	14.1	14k	and 1.	14m.	15d.	15d.
Silica, $\text{SiO}_4$	61.34	49.43	54.30	54.88	50.18	56.46	
Lime, $\text{CaO}$	20.30	26.40	22.87	22.76	25.57	22.01	
Phosphoric acid, $\text{P}_2\text{O}_5$	12.55	15.12	14.86	15.30	15.21	13.15	
Corresponding to:							
Lime phosphate, $\text{Ca}_3\text{P}_2\text{O}_10$	27.40	33.00	32.45	33.40	33.20	28.60	
and Lime carbonate, $\text{CaCO}_3$	9.75	15.21	9.36	8.23	13.45	11.56	
14e.—Stone Quarry Hollow, south of Terrapin creek. Phosphate and chert 2 feet from base of exposure; represents a bed 8 inches thick between thinner beds of chert.							
14.—Stone Quarry Hollow. Represents the upper 10 feet of the deposit, above the interbedded chert and phosphate.							
14k and 1.—Stone Quarry Hollow. Represents 10 feet of outcrop, 20 to 30 feet above its base.							
15m.—Stone Quarry Hollow. Represents 5 feet of outcrop, 30 to 35 feet above its base.							
15d.—Red Bank creek and Spencer place. Represents upper 10 feet of the deposit, from 30 to 35 feet above the base of the exposure.							

Only the silica, lime, and phosphoric acid were determined; but in each case there was an excess of lime over that required for combination with the phosphoric acid to form the neutral phosphate, and this excess was regarded as present in the rock as carbonate. Considering the lime as part carbonate and part phosphate, the proportions of these compounds, together with the silica, amount to from 90 to 95 per cent. of the rock.

\* Analyses made for the United States Geological Survey by the Chemical Department of Columbian University, Washington, D.C., under the direction of Professor C. E. Monroe.

The remaining 2 to 4 per cent. is probably iron and alumina, which were not determined.

**U**tilisation of the Deposit.—It will be seen from these analyses that the content of the lime phosphate is too low for utilisation by methods at present employed in the manufacture of fertilisers; 50 per cent. rock being the lowest grade now used. Whether other processes may be devised for utilising this low-grade material is a question which cannot be answered now. The abundance of the rock, the ease of mining and the availability of cheap water transportation to points of consumption are important factors in the problem. But, whether utilised or not, this deposit is of interest as suggesting the possibility of other deposits of higher grade in rocks not hitherto suspected of containing phosphates—namely, the widespread Carboniferous chert formations of Tennessee, Alabama, Kentucky, Missouri, and Arkansas. From this point of view the origin of the deposit becomes a matter of considerable importance; for it is scarcely credible that the conditions under which this deposit was formed should not have been present elsewhere in this extensive region.

**O**rigin of the Deposit.—Is the phosphate an original deposition accumulated during the deposition of the accompanying chert? The characteristics which point to original deposition in the case of the black Devonian phosphate are wholly absent here. Although some portions of the Fort Payne chert are highly fossiliferous, others are entirely barren, and, unlike the black phosphates, no traces of organic remains were observed in these or the associated cherts. Moreover, the great thickness of this deposit and its apparently local development are in striking contrast with the very wide distribution of a comparatively thin bed in the case of the black phosphate. If not an original deposit, this must be a secondary impregnation, and partial replacement of some original constituent, by lime phosphate. The microscopic structure of the rock affords strong evidence, if not conclusive proof, of this secondary replacement of the originally-contained calcite by secondary phosphate. The source of the phosphoric acid is not so easily determined as the fact that replacement has occurred. Limestones generally contain a small amount of phosphoric acid, and some of the overlying Carboniferous limestones contain a very considerable percentage. This seems the most probable source, although there is a possibility that the phosphate may have come from older Devonian and Silurian rocks, raised to a higher level by the gentle folding which the strata of the region have suffered.

Probably the replacement was a phase of weathering, and took place after the superincumbent strata had been largely removed, so that percolating waters had access to these beds. It is impossible at present to say what the particular conditions may have been which determined the legal accumulation of phosphate at this point, and no sufficiently detailed examination has been made to decide whether or not these conditions can be recognised and so definitely formulated as to be of value in future prospecting. It will be readily understood that the study which has been given thus far to these interesting deposits is wholly inadequate to answer the many questions suggested.

## ASSAYING AT THE ROYAL SAXON SCHOOL OF MINES, FREIBERG.

By JOHN BALL, Wh.Sc., Assoc.R.S.M.

**T**HE ancient School of Mines, or "Bergakademie," as it is there called, at Freiberg, is of particular interest to mining and metallurgical men from the renown attached to the mining and smelting works of the district (with which the School teaching is in very close connection), and from the peculiarity of some of the methods employed. The author has recently had an opportunity of examining the course of practical assaying there, and it is proposed in the present paper to offer some general remarks on the subject, taking particular notice of the points in which the methods differ from those usually employed and taught in England and America.

The course lasts ten months, occupying one forenoon or afternoon of four hours each week from October to July. As the accommodation in the laboratory is very limited, the classes are arranged so as to contain only about eight students, all of whom work together and use the same furnace.

The appliances are few and antiquated. There are but three muffle furnaces, of which only two are used, and but two wind-furnaces. Both muffle and wind furnaces are, however, large enough to hold eight or ten assays. Every operation, even such a trivial one as the sweeping of the gneiss floor in front of the furnace, is carried out with mathematical precision and in strict sequence. There is no chance for the student to make a mistake, as the demonstrator in charge guides his every movement. This method of instruction probably leads to accurate and concordant results being obtained by the students thus working together, and is probably the only way in which the work could be carried on with the existing appliances; but the policy of a too grandmotherly style of teaching assaying is open to question. It would appear to the author that the system adopted at the London School of Mines and other of our English schools of allowing each student to work independently, supplying each with a separate muffle and wind furnace, and not carrying the supervision too closely into details, is far better, from a practical point of view, for the student learns by making mistakes, and will be all the better for trying little variations of procedure for himself and noting the results.

Another point which strikes one as a deficiency in the Freiberg course is the way in which sampling, so important a part of the assayer's work, is neglected. The ores are invariably supplied in a fine powder, ready for weighing-out. It would be much better if students were made to take a sample from a bin of ore and crush it for themselves before assaying it, as is done at the London School. A similar fault might be found with the supply of fluxes and standard solutions, which are often given ready-mixed to the student. Doubtless this saves time, but a student would feel surer of his knowledge if he learned to do every detail for himself, as he generally must in practice.

The unit of weight adopted is the "centner" of 32 grammes (or 57.77 grains), which is subdivided into 100 "pfund." A centner is the weight of ore taken for most assays; from this it will be seen that a less weight of ore is used than is usual in English assays. The balances used for weighing-out the ores are much more delicate than those used for the same purpose in London, being capable of turning with a milligramme. A figure of the balance will be found in Kerl's "Probirkunst." For weighing bullion the ordinary bullion or chemical balances are used. Fluxes are generally measured out in spoons made to contain the requisite weight.

For reducing fusions a flux mixture composed of three parts of potassium carbonate to one part of rye-meal is almost invariably used; the meal in this answers the purpose of the

powdered charcoal generally employed in England. Potassium cyanide and resin are employed for reduction in a few cases.

The peculiar egg-shaped crucible shown in the sketch is used for nearly all assays involving fusion, and the fusions are performed either in the muffle or in the wind-furnace as may be most convenient. The product is allowed to cool and the button is extracted by subsequently breaking the pot. For some tin and bismuth assays a smooth crucible, very much resembling those used in this country for annealing gold, is used.

**G**old and Silver Assays.—The first three months are devoted to dry assays of the precious metals. The striking feature of this part of the course is the persistency with which the scoriafication method is adhered to, even for poor gold ores. During the whole course only one crucible assay for the precious metal was performed, this being in the case of a chloride silver ore. The scoriafication itself presents no special features beyond the addition of a little borax in a paper bag for cleaning the slag, for which purpose the English assayer mostly uses a little powdered anthracite. When the ore is a poor one it is re-scoriafied several times, beginning with a large number of charges, and gradually reducing them to one. For example, a gold ore carrying 7 ounces per ton was assayed as follows:—A charge of 1 centner of ore was scoriafied in each of 10 scoriafiers, the entire 10 being done simultaneously in one muffle. The resulting 10 buttons were placed in pairs in 5 scoriafiers and rescorified, yielding 5 buttons, of which 3 were rescorified in 1 scoriafier and 2 in another; finally, the 2 buttons were rescorified together, and the product cupelled. The above was the poorest ore assayed during the author's stay; but he was informed that in some cases the start would be made with 30 scoriafiers, which would fill the muffle. It is held by the Freiberg authorities that less loss results even from so oft-repeated a scoriafication as this than from a single fusion in a large crucible.

Silver bullion assays are conducted in tiny portable muffle furnaces heated by gas or charcoal.

The parting of gold and silver is conducted as in the German Mint. The nitric acid used is of specific gravity 1.2, and the apparatus is quite analogous to that used in England.

The Gay-Lussac wet silver assay, as used in the English Mint, is taught, as well as Volhard's volumetric method. The latter method, in which the silver in nitric acid solution is titrated with a standard solution of ammonium sulpho-cyanate, is rapid and said to be very accurate. It would seem worthy of a place in English schools.

**L**ead Assays.—The methods taught for lead are the Freiberg process, the Upper Hartz process, and the Belgian or iron pot process. Of these, the first-named is, of course, most emphasised. One centner of ore, with a small cylinder of iron weighing about  $\frac{1}{2}$  centner, is fused for about 1½ hour in an egg-shaped crucible, with about 3 centners of the flux mixture already mentioned, 1 centner of borax, a little glass, and a cover of common salt. After fusion and cooling, the lead is cut away from the iron and weighed. In spite of the appearance of the c'mns'n in which the scraping of the iron presents, the method gives very accurate results.

In the Upper Hartz process a mixture of 1 centner of ore with 3 centners of carbonate of potash and a little borax is fused in a wide-mouthed crucible under a cover of common salt for 25 minutes in a closed muffle at a full red-heat. The muffle is next opened for 15 minutes, then closed again for 15 minutes, and the crucible taken out and cooled. This method gives a rather lower result than the Freiberg process.

The Belgian method in the iron pot is similar to that commonly employed in England. The crucible, which is  $1\frac{1}{2}$  inch in inside diameter, is very heavy, having a bottom 14 inch thick and  $\frac{1}{2}$  inch sides; it is said to last for 100 assays. The charge is 20 grammes of ore with about twice its weight of flux.

**C**opper Assays.—The English dry copper assay is not taught, the German method, which has the advantage of far less difficulty and greater rapidity, being used in its place. This method is managed as follows for a pyritic ore. The ore is first roasted with charcoal, then fused in an egg-shaped crucible for about 1½ hour, with about  $\frac{1}{2}$  of its weight of metallic antimony, about six times its weight of the flux mixture, and a little glass and borax, under a cover of common salt, a cube of charcoal being placed in the mouth of the crucible. The result of this fusion is a button of a brittle alloy of iron, antimony, and copper; this button is inserted with a little borax in a small shallow scoriafier in a very hot muffle, and scoriafied. When all the iron is slagged off, fumes of oxide of antimony appear; these fumes ultimately cease, then the bead shows rainbow colours and sinks into the slag. When this happens, the scoriafier is instantly removed, gently cooled in water, and the bead of copper extracted and weighed. The assay is said to be very exact if properly done, but is inferior to the English process in that the ore is not assayed by the same treatment as will be used for its treatment on the large scale, and consequently its indications are less practical than those of the English assay. About 0.1 per cent. of antimony is left in the copper, and a little copper is lost in the slag; these effects about neutralise one another in the weight of the bead.

Another assay used for pyritic ores is the modified Swedish process, in which the ore is roasted sweet with charcoal, digested in aqua regia, the solution evaporated with sulphuric acid so as to form copper sulphate, then filtered. The copper is next precipitated from the hot filtered solution on clean rods of wrought-iron simply immersed in it. The precipitated copper is filtered off, washed, and oxidised for a few minutes in a muffle so as to form cupric oxide ( $\text{CuO}$ ) in which form it is weighed. The  $\text{CuO}$  contains 79 per cent. of copper.

The cyanide volumetric copper assay is taught, but the iodide method is, curiously enough, omitted, though generally regarded in this country and America as by far the more accurate of the two.

The electrolytic assay of copper is well taught, the apparatus for this being one of the best features of the laboratory. The current is supplied at a pressure of 4 volts from accumulators charged by a neighbouring dynamo. When the number of assays to be done at one time exceeds the capacity of the accumulators, a battery of six very large Middinger cells is used for a portion of the work. The platinum electrodes are of the ordinary cylinder and spiral form, and the current is such as to give from 100 to 120 cubic centimetres of mixed gases per hour in a water voltmeter.

**Tin Assays.**—The methods taught for tin are the cyanide assay and the German tin assay. The Cornish process, which yields such good practical results, and enables the quality of the metal to be easily judged, is not shown, nor the roasting of tin ores. The cyanide assay is conducted in very small smooth crucibles about  $1\frac{1}{2}$  inch high, placed in a muffle, the ore being previously freed from wolfram by treatment with hydrochloric acid, and subsequently with ammonia.

In the German tin assay the ore is likewise first purified, then roasted with charcoal, and fused in an egg-shaped crucible at a high temperature in a muffle for about 1½ hour, with four or five times its weight of flux mixture and a little borax under a cover of common salt.



**Zinc Assay.**—The ordinary volumetric zinc assay with a standard solution of sodium sulphide is used, the only peculiarity being the determination of the "finishing-point" of the titration. This is done by filtering a drop of the solution through a sheet of filter paper on to a lead acetate paper; a faint brown stain of lead sulphide appears on the paper as soon as all the zinc is precipitated.

**Plattner's Cobalt and Nickel Assay.**—This assay, one of the most attractive and interesting in the course, is performed on a *spieze* as follows. A small quantity of borax is fused in a small shallow crucible in a very hot muffle. To this the weighed *spieze*, wrapped in tissue paper, is added. The first stage in the scorification is the slagging of the iron, during which the bead gives off scales of iron oxide; when all the iron is slagged, the bead appears bright, and at this point the crucible is instantly removed and gently quenched in water. The bead is then heated for half an hour in a muffle in a little charcoal capsule with a trace of borax; this is to get rid of excess of arsenic. The bead, which has the composition (C<sub>o</sub> Ni) As<sub>2</sub>, is then weighed, and rescorified in a fresh crucible till scales of basic nickel arsenite appear on the previously shining bead; it is then quenched, cleaned, and weighed, being now of the composition Ni As<sub>2</sub> and containing 61·1 per cent. of nickel. From the two weighings the percentages of Ni and Co in the ore are easily calculated.

In the case of an ore containing cobalt, nickel, and bismuth half a centner of the ore is first heated in a crucible in a closed muffle, with an equal weight of powdered metallic arsenic, till no more blue flame can be seen. The product is fused in an egg-shaped crucible, with 3 pounds of granulated lead, 2 centners of flux mixture,  $\frac{1}{2}$  centner of borax, and a little powdered glass, under a cover of common salt, in a wind-furnace for 1½ hours. The products are an alloy of lead with the whole of the bismuth, from the weight of which the percentage of bismuth is found; and a *spieze*, which is assayed for cobalt and nickel in the manner just described.

**Bismuth Assay.**—Basic bismuth chloride is assayed by a reducing fusion with potassium cyanide in exactly the same way as tin ore.

**Assay of Pyrites in Sulphide Ores.**—To estimate the pyrites in an ore, for the purpose of calculating the fluxes for smelting it, the ore is fused for 1½ hours with 1-10th its weight of powdered resin, three times its weight of borax and its weight of glass, under a cover of common salt. The resulting ferrous sulphide is weighed, and the proportion of pyrites thence calculated—88 parts of FeS correspond to 120 of FeS<sub>2</sub>.

**Examination of Fuels.**—The estimation of coke and ash present nothing special. The estimation of calorific value is, however, done in a peculiar way. One gramme of the coal is heated with excess of litharge in an egg-shaped crucible for three-quarters of an hour in a muffle. The weight of the resulting lead button is a measure of the calorific value. Since 1 part of carbon reduces 34·5 parts of lead from an excess of litharge, and 1 gramme of carbon in combustion liberates 8080 calories, the absolute thermal effect of the fuel is  $W \times 8080$  where W is the weight of lead obtained.

The English or American visitor who hears so much of the renown of the Freiberg School (and he is not allowed to forget this in the place itself) will probably be much disappointed in the lamentably backward state of the equipment of the assaying laboratory, and the somewhat narrow character of the instruction as compared with what he finds at home. As a writer in *The New York Engineering and Mining Journal* recently remarked, the fame of Freiberg was built in the days when that School stood alone in the field—a condition very different from those which hold to-day, when numerous rival schools exist in England and America, fully equipped with the most recent appliances, and where research and learning receive every stimulus and encouragement. Still, the assaying methods, like the larger processes of the adjoining works, are full of interest for the visitor, as the foregoing brief glance may show, and the course well repays the small time required to follow it. But for reasons already mentioned the author is inclined to think that the young English or American metallurgical student who wishes to study the Freiberg assaying course should, if possible, go through a previous course at one of the schools in his own country, where more time can be given to experimental work than is possible in four hours' practice per week.

**BENGAL COAL.**—It is officially reported that in the last quarter of 1895, the imports of coal from Bengal into the North-West Provinces were a third larger than in the corresponding quarter of the previous 12 months. The increasing export of Bengal coal from the North-West Provinces into Rajputana and Central India, goes to show that a through traffic is also growing up for the supply of still more distant Provinces.

**CO-OPERATIVE COAL MINING IN NEW ZEALAND.**—The proprietors of the Mokihinui coal mine, near Wellington, have recently concluded an arrangement for the working of the mines on the co-operative principle. So far the experiment is proving satisfactory. A double line of tramway has been laid down, and an output of 600 tons per day will very soon be a regular average. Meanwhile, further boring operations in the district are in progress, and seams of good hard coal 15 to 19 feet in thickness are being found at an easy workable depth.

**JOE'S REEFS UNITED.**—The statutory meeting of Joe's Reefs United (Sheba), Limited, was held at the Cannon-street Hotel, on Monday, Mr. W. J. Harvey presiding.—The Chairman said he was pleased to be able to give a good account of the reconstruction and of the progress of the works at the mine. Every share available in this country had been applied for and allotted, which meant that out of 30,000 shares, forming the capital, over 85,000 had been allotted. There had not yet been sufficient time for the South African and foreign shareholders' applications to be received, but the directors had no doubt that every share would be taken up. The returns from the mine, which were 363 ounces of gold in July, and 376 ounces of gold in August, from 10 stamps only, showed no failing-off, and it was only fair to suppose that the present returns, which were far from unsatisfactory, would, when further development was effected by the additional capital, be largely augmented. The Barberton district, owing to railway extensions and the new and more economical modes of treating low grade ores, was coming more to the front every day. They had had applications from several quarters for the purchase of part of their 64 claims. If such propositions were entertained it would be at a price which would still further confirm the high estimate now placed on the value of their property.

**GOLD SEEKING IN CHOTA-NAGPORE.**—It is understood that at the commencement of the next cold season, Mr. W. Anderson, mining specialist on the Geological Survey, will, with the assistance of Dr. Warth, continue his survey of the supposed gold-bearing areas of Chota-Nagpore. The Government of India has provided the necessary funds for prospecting operations.

**WHEAL FRIENDLY MINE COMPANY.**—The offices have been removed to 2, Cophall-buildings, London, E.C.

**A GRAND SPECULATION.**—In these days of financial unrest, is a rare thing for people with spare capital to come across. It is, therefore, refreshing to know that in purchasing a box of Hollo-way's Pills, good value for money can be obtained. They never fail to give instant relief from pain, and no disease can long withstand their purifying influence. A few appropriate doses at the proper period will prevent many a serious illness. Their primary action is upon the blood, stomach, liver, kidneys, and bowels. Their secondary action strengthens the nervous centres. No drug can be so harmless yet so antagonistic to disorders caused by brain worry. The most perfect reliance may be placed upon their regulating and renovating virtues.

## MEETINGS OF MINING COMPANIES.

### Straits Development Company, Limited.

**THE** ordinary general meeting of the members of the Straits Development Company (Limited) was held at the Cannon-street Hotel, on Monday—Mr. EDMUND BERDOE-WILKINSON (the Chairman) presiding.

The SECRETARY (Mr. Arthur F. Austin) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—I will first turn to the accounts. You will observe that these accounts go to February 13, 1895. At that date there were 184,292 shares issued, with 17% credited as paid up, and 1s. 6d. per share has been called up. The total amount of issued capital now is 202,665 shares, which is the same number of shares as were issued by the Pahang Exploration and Development Company. I do not think that there is anything further that I need explain on the liability side of the balance sheet—the other items speak for themselves. The item of purchase of land at Singapore was for a mill site, and the following item—"extension of concessions"—is the amount we paid under protest to the Government of Pahang to induce them not to cancel our concessions under a right which they said they possessed. The additions to plant and machinery (£681) would really be more correctly described as for overhauling machinery and putting it in thorough repair, because when I got to Kuala Pahang I found that it had suffered a good deal, and although in good condition it wanted thorough overhauling, and it is in a condition now equal to new. The repairs to launches I need not explain. I do not know whether there are any other items which need any explanation, but any question any shareholder may ask I will endeavour to answer to the best of my ability. I will now turn to our general working and our present position. Since I had the pleasure of addressing you on May 23 last we have received a report from our manager in Singapore stating that the mills are now in full working order, and that, as we state in the report, 10 tons a day of sawn timber are being turned out, a quantity which will be increased so soon as the machinery has been running for a short time, and that if we thought it well to send out some small additions to the machinery that the output from the mills would be made to exceed 20 tons a day of converted timber. Ten tons a day is a quantity far in excess of anything ever turned out by the mills when they were at Kuala Pahang. As to the quality of the timber turned out by the mills, I am not at present able to speak, because no consignment has been received in England; but in a letter received last week from our agent he stated that the mills were busy with local orders. I think that the shareholders must consider that result eminently satisfactory when it is borne in mind the magnitude of the undertaking of moving all of the machinery down from Kuala Pahang—to which place all labour had to be imported—to Singapore, and erect it upon a site which we had to make ourselves. I am quite certain that if the shareholders could see the mills they would have reason to be pleased with their property. There are people who think the mills a monument of wasted money, and that the business will never pay. They may be right, but I think they are wrong. I hope to be able to prove it before long. All I can tell you is this, that within the last week I have, before going out to the East, visited various firms who have been buyers of our timber, and I have myself got orders from them which show a very satisfactory clear profit, after paying everything. There is one point which I wish very earnestly to give prominence to, and it is this—that we know exactly what the cost of every ton of converted timber is in Singapore. When we put it on board a ship or deliver it we know what it has cost us, and that I venture to say was never known to the Pahang Exploration Company. Now I will turn to the mineral concessions. Since meeting you in May, when I presided at the last meeting, you will recollect that I told you that negotiations were in progress, which, if carried out, would result very satisfactorily to the shareholders. These negotiations fell through, but shortly afterwards we determined to form a company. We succeeded in forming a company, and got the capital for that company, and I do not think that sufficient prominence can be given to the fact that, by means of floating that company 40,000 sovereigns are going to be put into the district of the Cherubang, which is the portion of the property sold by the Straits Development Company to the Cherubang Company. When I say that that portion of the property has been sold to the Cherubang Company, I should really say half of that portion, because under the terms of the agreement made between the two companies we sell half interest in the land—approximately 6 miles in length by 1 in breadth. The area is purely approximate. It is reckoned on the rough map handed to me by Mr. Palmerston. Now, gentlemen, I think the importance of the fact of 40,000 sovereigns being there, to be used on the portion of our property in which we retain a half interest, cannot be exaggerated. We have received from Mr. Palmerston since the 23rd of May a very long letter, reporting further discoveries. He reports having struck the reef to a distance of 80 odd feet, and that in places it is richer than when it was first opened up. He had had considerable difficulties to contend with, heavy storms having swept away his workings. He had to timber them up, and they are all in good working order again now, and he writes in exactly the same spirit as he has written all through. He complains a good deal of his hardships, but he does not complain of the property. Personally I have just as much faith in the property, and more to-day than I had when I last addressed you. I know that some people have been to the company to say that I have been exaggerating the prospects of the company's properties, that all my geese are swans, and various other remarks; but I think it will be admitted that I know something about it as I have been there, and I will guarantee to say that not one of the gentlemen who have made these remarks has been or will go there. Therefore, I will ask you to be good enough still to continue the confidence in me which you have always shown, and, until you have reason and proof that I have been misleading you, not to be shaken in your confidence in me. (Applause.) I propose to leave England on October 3—next Thursday week—to go to Singapore again, and it will be my first duty to try and push forward the making of a cart-track to Passoh. The arrangements have been made with the Cherubang Company, which I consider eminently satisfactory to this company, by which sum is to be paid by the Cherubang to this company for the making of this cart track. I need not point out that when this cart track is made the advantage that will accrue to this company with regard to the bulk of this concession will be very great indeed. The track will enable us to get cheap labour; it will enable us to get food for our coolies cheaply, and also to get our machinery up more easily when the time arrives to do so. I shall do all I possibly can to oppose the purchase of a single pound's worth of machinery until that road has been made, because I know from experience the danger of buying machinery without being sure of the possibility of transporting it. I propose to avoid that by every means in my power. I would again ask the shareholders not to take the balance-sheet as the position of the company to-day. All persons interested in this company must be struck by what has taken place in the market in the price of these shares. I cannot account for it in any way whatever. The only solution that I can possibly imagine is that in reading this balance-sheet gentlemen have forgotten that it runs to February 13, 1895, and not to this date, and it represents an amount of issued capital then which is very different now. They might very well look upon it that there is a certain amount of unissued capital, and that they have got £4000 in hand, and no money to go on with. I tell you, gentlemen, that we have money to go on with, and we are going on; and since that date I tell you that the Oberobang Company has been formed, from which we have received £10,000 in cash and £20,000 in shares. Personally, I have very little doubt that before long those 20,000 shares will represent at least £20,000. In addition to that, the cash we have in hand is amply sufficient to enable us to go on with our prospecting work, and we are going on with it. (Hear,

hear.) I do not know if I have omitted to say anything that shareholders would desire to know, but I only add that if there are any questions that anybody desires to ask I shall be very happy to do my best to answer them. I now conclude by moving the adoption of the report and accounts. (Applause.)

Dr. CLARK, M.P., seconded the motion.

The CHAIRMAN, in reply to questions, said there was a considerable demand for hard wood not only in this country, but in other parts of Europe, India, and South Africa. As to the cost of the road track, he could not at present form an idea, nor could he say when the track would be completed, but he believed it would be in less than six months. It was the intention of the directors to promote further their companies, but he regretted to state that they had received very small support so far from the shareholders in carrying out this policy.

The resolution was then put and carried unanimously.

On the motion of the CHAIRMAN, seconded by Mr. GAUSSEN, D. Clark, M.P., was re-elected a director of the company.

Messrs. Crewdon, Youatt, and Howard were reappointed auditors.

Mr. DAVIS moved a vote of thanks to the Chairman, congratulating the shareholders on the marvellous change which had taken place in the fortunes of the company during recent years.

Mr. HICKMAN seconded the motion, which was agreed to; and the CHAIRMAN, in acknowledging the compliment, stated that the discoveries which had been made, which had been of such great importance to the company, had been made by Mr. Palmerston. He would have been very glad indeed if the shareholders had seen their way to voting him some special remuneration. He, however, felt that the board would be fully justified in recognising Mr. Palmerston's valuable services without any special resolution. (Hear,

The proceedings then terminated.

### GOLDEN ARROW MINES, LIMITED.

The first ordinary general (or statutory) meeting of the shareholders in the Golden Arrow Mines (Limited) was held on Tuesday last, at Winchester House, E.C., the chair being occupied by the Hon. C. E. HOGG, in the absence of the Chairman of the company, the Hon. Howard Spensley.

The SECRETARY (Mr. F. Moore) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—I regret to inform you of the absence, through illness, of our Chairman, but I trust that, as one of the directors of the company, I shall be able to afford you the information you necessarily require. As you are perfectly aware, these meetings are held in conformity with the rules and regulations under which these companies are formed, and afford from time to time means of supplying news to the public, and of enabling the directors to keep the public in touch with the company and its operations. I have very much pleasure, indeed, in presiding over this meeting, because I am able to announce to the shareholders the fact that this company, having gone to allotment on £45,891, stands in a position which enables it not only to satisfy the claims of the vendors, but also to retain the handsome working capital of £25,000, which will be at the disposal of the directors. The company has, of course, very recently gone to allotment, and the transfer of the property has not yet been announced, but the board has received information from its agents in Coolgardie that the necessary formalities are being rapidly proceeded with, and that the transfer may be expected daily. Immediately the property is transferred active steps will be taken by the board for its successful working. The plans for machinery are already completed, and we have reason to believe that the mine will be in full working order in about six months time. In the meantime the large and necessary work of development will be pushed on without any delay whatever. I may mention that from the very first this mine has been consistently worked by the Australian vendors, and it has shown a continuity of improvement that must be highly satisfactory to every shareholder. On referring to the prospectus I find that in November Mr. Fearnley reported that they were down 70 feet, and the reef was 3 feet wide. In March of this year the manager reported that the shaft was down 140 feet, and the reef was 4 feet wide. In August of this year we received a cable from Melbourne from the manager to the following effect:—"The width of the reef is 5 feet, driven through good ore; not yet struck the hanging-wall; very rich in gold; developments opening up splendidly; crushing will yield per ton 17 ounces regularly." Later in the same month we received the following telegram:—"Hanging-wall solid and good; the width of the reef is 5 feet; the developments of the mine fully justify the expectations which have been formed." The directors being anxious to supply this meeting with the very latest information, cabled some days ago to the mine, and asked the latest news regarding the developments, and on September 20 received this reply:—"Average width of lode is 10 feet; the mine is very rich in free gold; the adjoining mine known as Hill End (which is on the same line of reef) crushed 61 tons, and obtained 650 ounces of gold." That looks to me, gentlemen, as if we had got hold of another Great Boulder. There is a consistency in the story of the development of this reef, which, to any mining man, must be highly satisfactory, the reef beginning, as a good reef should, fairly wide at the surface, and widening as it goes deeper and deeper. The latest cables bear out not only the reports appearing in the prospects, but the analysis I was asked to make by the solicitors to the company of those reports. I may mention that the mail delivered this morning from Coolgardie conveys the following intelligence with regard to this mine and the one immediately adjoining it:—"At the Broad Arrow mining matters are progressing satisfactorily in the locality. The Hill End Mine (that is the mine I have just referred to, continues to produce the same quality of stone which has rendered it famous, the last crushing being 335 ounces from 17 tons—a truly splendid return." I may mention that there is a battery at work on the Hill End property. Further down the reporter states that "at the Arrow Mine, now called the Golden Arrow, the stone continues to improve." Gentlemen, that is briefly the news I have to convey to you. I do not think, with such a report as I am able to give you, there is any necessity to make any comments or remarks. It appears that this company has obtained possession of one of those valuable properties, for which Coolgardie is now becoming famous. It has been among the first who visited that field, and having carefully examined many of the great Australian gold fields, I was fully satisfied that the field would in every way realise the expectations formed by men accustomed to judge of gold fields. We in Australia are essentially a gold mining people, and are, therefore, accustomed to form a comparison between different mines. I formed at the time a good opinion of Coolgardie gold field, but I must say it has been to me a series of surprises. I do not think any mining man expected such results as have been obtained. To bear of thousands of tons of quartz yielding 8 or 9 ounces is quite phenomenal. We have been satisfied in Victoria and other parts of Australia with about  $\frac{1}{2}$  ounce to the ton. When I tell you that Australia has produced £400,000,000 worth of gold, of which the Colony of Victoria has produced something like £300,000,000, it will give you some idea of what may be expected from Coolgardie and the West Australian gold fields when you consider that the gold-bearing area alone exceeds the whole area of the Colony of Victoria. I think that at no very recent date we shall be able to approach in friendly rivalry the great South African mines. There is one great comfort in gold producing—namely, that there is no competition in it. If South Africa produces a large quantity of gold, it is good for Australia; and if Australia produces a large quantity of gold, it is good for South Africa. In conclusion, I only desire to express the hope that Australian mines will turn out the brilliant success the South African mines have done; and I think, after the reports you have heard, we have no reason to doubt that the investments we have entered into in Western Australia will prove less satisfactory, less lasting, and less remunerative than those made in South Africa and other great mining centres. (Applause.)

Mr. HAWITT enquired whether water had been struck. The CHAIRMAN, in reply, said the shaft had not yet reached

water, but the shareholders might gather from the fact that on the adjoining mine there was a battery at work, water was available in the reefs by a little deeper sinking. He thought the water in question had, to great extent, been over-rated in Coolgardie, and that it would soon become an unknown quantity.

A SHAREHOLDER asked if any recent estimate had been obtained of the amount of ore in sight.

The CHAIRMAN replied that the amount of ore in sight, based upon the previous estimates, amounted to something like £400,000 worth. This was calculated upon an average width of reef of 2½ feet, and now they were told that the reef had widened to 10 feet, so it was only reasonable to suppose that the former estimate would be largely augmented.

Mr. NOTT proposed a vote of thanks to the Chairman, which was seconded by Mr. HIDDEN, and carried unanimously.

The CHAIRMAN acknowledged the compliment, and expressed the hope that the next time the directors met the shareholders they would be in a position to declare a dividend.

The meeting then terminated.

## THE MOUNT ROWE CONSOLIDATED MINING COMPANY, LIMITED.

The first general (statutory) meeting of the shareholders of the Mount Rowe Consolidated Mining Company (Limited) was held on Tuesday, at the Cannon-street Hotel, Mr. GEORGE HOPKINS, C.E., presiding.

In the absence, owing to a slight accident, of the secretary (Mr. Herbert Akers) the notice convening the meeting was read by the CHAIRMAN.

The CHAIRMAN then said: Gentlemen—When the Legislature made it incumbent upon all joint-stock companies to hold their first meeting within four months of the date of registration I suppose they had in view the working of companies situated in the United Kingdom, for in the inauguration of undertakings situated some 12,000 or 14,000 miles away—such as ours—very little can be done in the first four months. The prospectus may be advertised, the shares allotted, the purchase completed, a manager appointed, and the board of directors may even order the machinery, and all these things we have done. The prospectus, as you will remember, was sent out to shareholders in the Richmond Consolidated Company only. It was very well responded to—so well, in fact,

that the directors were able to go to allotment, and with the shares

which the vendors had to take they were enabled to place the whole

of the capital they sought to place at that time. At the present

moment we have 242 shareholders, holding amongst them 75,000

shares. We were enabled to complete the purchase of all the pro-

perties, and we also engaged our manager—Mr. Wright—who left

England on July 4, and arrived in Coolgardie on August 12. Until

we know more of the quality and character of the ore, the directors

have decided not to go to any heavy expense in sending out ma-

chinery, and one of our instructions to Mr. Wright was that as soon

as he got out he should take steps to crush at some outside mill

whatever ore was lying on the property, and also, as soon

as possible, to raise some fresh ore from the mine. For

this purpose we ordered hoisting machinery and an oil-

engine, but these have not yet been erected, as sufficient time

has not elapsed since they were sent out. On August 24 our

manager telegraphed as follows:—"Developments opening up

splendidly. Have made arrangements for a trial crushing of 50 tons

of ore. Gold visible to the eye." Well that was the latest

information we had until this morning. We had cabled out to the

manager to say that the meeting would be held to-day, and that the

shareholders would like to have the latest news, and it so happens

that in addition to his cabled reply we have received from him this

morning a letter written on August 20, which, of course, is consider-

ably antecedent to the telegram. In that letter he says:—"Dear Sir.—Upon my arrival in Coolgardie I proceeded to examine

the Mount Rowe properties, and was very pleased with the progress made in the development of the reefs,

and the result of the pannings from the ore." You will understand

that, according to the mining laws of West Australia, you are

obliged to do a certain amount of work on each claim, and our in-

structions to Mr. Wright's son, who was in temporary charge, were

to do no more than was absolutely necessary, and that what-

ever he did in the way of spending money should be in

sinking of shafts to get down deeper on to the ore. The letter con-

tinues:—"The late manager has been away from Coolgardie for

some weeks, so I have not been able to go through the accounts with

him. Next week I shall send you a detailed report and a plan show-

ing the depths of the various shafts. Exemption, which my

son applied for and got for one month, expires next Tuesday,

when active operations will be at once commenced." That

was another instruction we gave. We did not want

to spend any more money than we could help before our manager

got there, and we instructed his son to get exemption from the

labour if he could. This morning we received the following telegram,

dated September 23:—"Lease 988 (that is the southernmost one): Depth of shaft 87 feet; struck vein in crosscut. Have recommended driving. Lease 754 (that is the northernmost but one): Depth of shaft 150 feet; struck vein in crosscut. Trial crushing—Will

cable you the result not later than October 30." That is the latest

news we have from the mine. Now I have a number of extracts

from newspapers as to properties in the neighbourhood, but I do

not propose to trouble you with them, because you have every oppor-

tunity of reading them yourselves. I will, however, as some of

the shareholders may not be fully aware of the situation

of the property, explain that it consists of four adjoining claims

situate in one of the best parts of the Coolgardie field, and is

2 miles south-east of the town of Coolgardie. On the south there

is only one lease between our property and the Lady Loch. The

Lady Loch is a property of which we have heard a good deal

lately, and from which some exceedingly good ore has been raised.

A report from the Lady Loch, dated July 20, says:—"The reef at

present is fully 2 feet 6 inches thick, of 8 ounce stone. Expect to

meet with much better gold below water level as the stone is be-

coming more mineralised, and showing galena, which is recognised

as a good indicator, and the gold is now much coarser, and well in

the body of the stone." Another report says:—"A thoroughly

representative trial crushing from bulk of the Lady Loch ore

resulted as follows: 13 tons yielded 95 ounces, equal to 7 ounces

6 dwt. per ton." That report further states that there is a large

quantity of ore at grass, and that machinery is now on its way from

England. I merely read that because the Lady Loch property is

very close to ours. On the south-west of our property we have the

Orient Mines, which belong to the Hampton Gold Fields Company,

and are opening up exceedingly well. Immediately adjoining our

property on the west side is Bayley's Reward No. 2, and a little

further off are the Big Blow Mines. You will thus see that our

property is situated amongst mines which have got a little start of

us, and which are rapidly coming to the front. There is only one

other matter I wish to touch upon. You may remember that in

the prospectus we spoke of the probability that we should be able

a little later on to sell some of our property to another company. We

have been engaged in negotiations with that object in view; and

although I am not at liberty to give any figures, or to allude to the

matter except in a general way, I may say there seems to be every

prospect that an arrangement will be brought about by

which one of our claims and an adjoining one, which does

not belong to us, will be united into a separate undertaking, or sold

to a new company, and from what I know of the negotiations I

think the terms will be very favourable to us. One advantage—and

it is a great one—in this company is the smallness of the capital.

Our authorised capital is only £90,000, and of that only £75,000

is issued, which includes £10,000 for working capital. As compared

with the properties which I have just mentioned that is a remark-

ably small capital. Whilst the Lady Loch was sold at £4166 per

acre, Bayley's No. 2 South for £3333, the Big Blow for £3472,

the Mount Rowe was bought for £1413 per acre—a very much

lower price than any of the adjoining mines. Now, what the future of our property is going to be I cannot say. We must develop it—or a portion of it—but if there is any reliance at all to be placed in the reports of the experts who have examined the property it ought to turn out a valuable one, and there is no reason to doubt that it will. In conclusion, I can only say that during the past four months we have done all we could. We have started the undertaking, and now await the result of the manager's operations. As you see from his cablegram to-day, the time of the exemption has expired, and he will now go on working energetically.

Mr. HENOCHSBERG said he had attended that meeting as a shareholder, for besides occupying the position of vendor, and receiving his proportion of vendors' shares, he applied for 2500 shares in the ordinary manner. (Hear, hear.) He had known the property for about 15 months, and for a considerable time had visited it three times a week. He had been familiar with its developments from the first, and knew it had been worked by thoroughly good men. As a matter of fact, before he consented to its sale on the London market, he spent £2000 in keeping it properly worked by 20 men. When he left in February this year they were down 100 feet on gold in the Mount Rowe. On the Regina North, the Regina South, the Salesman, and the No Gammon, there were immense bodies of quartz, and in places the reef was disclosed to be over 30 feet wide, with good battery stone, averaging from 2 to 3 ounces to the ton. There was no doubt that crushings from the mine would be continued for many decades at least; at present there was 20 years' crushing in sight. (Applause.) They had only to ask those who knew the mine what they thought of it, and it would be generally admitted that it was as good a mine as any on the field. He regarded his own interest in the mine rather as an investment than as a speculation, and as one that would return satisfactory dividends continuously.

In reply to questions, Mr. HENOCHSBERG said that the property was probably the best wooded spot within a 50 mile radius of Coolgardie. At present they had no water, but since all their neighbours had struck it at a depth of 60 or 80 feet there was no reason to doubt that they would be able to get it at a moderate depth. He added that the other vendors had remitted to him the whole of their shares with instructions that they were not to be sold.

A vote of thanks to the Chairman and directors, heartily given on the motion of Mr. HART, seconded by Mr. HEARD, terminated the meeting.

## GOLDEN DUNDEE, LIMITED.

The first ordinary (statutory) general meeting of this company was held on Monday, at Winchester House, Old Broad-street, Mr. JAMES DOYLE presiding.

The SECRETARY (Mr. Arthur Hebborn) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—This being the statutory general meeting of the company there is no formal business to be transacted, but the directors are pleased to meet you so as to let you know what steps they have taken since the formation of the company towards organising the staff for developing the mine and obtaining paying results as soon as possible. The company was incorporated on May 27, and went to allotment on June 17. The first business of the directors was to send out a power of attorney to Messrs. Parker and Parker, our solicitors at Perth, to enable them to take over the property on behalf of the company. This was done without delay, and on August 12 we received a cablegram (since confirmed by letter) to the effect that the property had been transferred to and registered in the name of the company. It will thus be seen that we have been in absolute possession of the property for barely six weeks, and considering that it takes nine or ten weeks in which to send out a letter and receive a reply, your directors may fairly claim credit for the promptness with which work on the mine has been started. When the company acquired the property the mine had been proved by five shafts sunk on the vein to depths varying from 40 to 90 feet. These proved the vein for a length of 580 yards, averaging about 2 feet in thickness, and assaying from 1½ to 4 ounces of gold per ton. A crushing of 117 tons had previously yielded 3 and 3½ ounces per ton. With the exception of hand-windlasses there was no machinery whatever on the mine. Fortunately, from our position, we shall not require to erect a mill of our own, the public crushing battery being situated only 300 yards distant. This company, as you are aware, was promoted by the Murchison Gold Fields, and they have since been of great assistance to us by placing at our disposal the services of their resident agent, Mr. Mitchell, a gentleman of position and experience, in whom we have every confidence. Mr. Mitchell has selected a manager for us, a Mr. Perks, of whom we speak highly as being an experienced miner. Mr. Mitchell has also purchased for us at Geraldton, a supply of general mining stores and tools, winding plant, a horse, &c., and these, together with some additional miners whom he engaged at Geraldton, are now on the way to the property. Until their arrival but little can be done in the way of raising ore. In the meantime, however, Mr. Perks, with the staff at his command, has been pushing on with the development of the mine, and he has also contrived to raise a little ore. When the company took over the property there were some heaps of ore on the dump, amounting in all to 90 tons. This consisted partly of ore and partly of mullock raised in sinking the shafts. We have since ascertained that a large number of the rich specimens were abstracted by the former owners whilst the property was under option, and in the absence of supervision by the intending purchasers. We have put the whole of these heaps through the mill, and whilst the result was only moderately satisfactory, the yield being only a little over 1 ounce to the ton, it still gave us a profit of about £2 15s. per ton. On the 5th of this month we received a cablegram to say that a crushing had taken place of 55 tons of ore raised by the company which had yielded 85 ounces of gold, and that a further 150 tons of ore were to be crushed the following week. This was more satisfactory, and on the engineers' estimates of the total costs of mining and milling it should give us a net profit of about £4 per ton. Soon after the receipt of that cablegram we learned that the public battery had been closed in consequence of repairs, so the remaining 150 tons of ore therein referred to have not yet been crushed. Though in the case of a small company like ours it is undoubtedly an economy not to have a mill or a milling staff of our own, yet it must be admitted that a certain amount of suspicion necessarily attaches to having one's ore treated at a public battery. Though the owners of the battery may be thoroughly honest, and return every fraction of the gold saved in the amalgam on the plates, yet as they are paid by tonnage and not by the percentage of the gold saved, it is their interest to run through the mill as large a quantity of ore in as short a time as possible. Consequently, the screens are often of a larger mesh than is advisable, and more water is passed through the mortars than is requisite to obtain the best results, and if the plates are set at a greater incline than in private batteries the gold that passes away on this account is not quite lost, for it remains in the tailings, which forms a perquisite of the millowner. On this point I have an announcement to make to you that is of the utmost importance to our company. I am pleased to inform you that the battery we have hitherto used has now been purchased by the Murchison Gold Fields (Limited), and as they work in intimate harmony with us, and are, in fact, largely interested in our company, we can rely in future on our ore being treated promptly, and to the best advantage that skill, combined with modern science, can accomplish. I may say that we received a cablegram from Mr. Mitchell this morning saying that the Murchison Gold Fields Company is now in legal possession of the battery, and that it will at once commence to crush 300 tons of ore from the Golden Dundee Mine. In conclusion, gentlemen, I think we may congratulate ourselves on the possession of a most valuable property. The richness of the lode in our mine has been proved, not at one point only, but by five shafts extending from end to end of the property for one-third of a mile. From each of these shafts levels can be driven for stoping the ore, and we have already shown by actual milling results that

we are making a net profit of about £4 per ton. In the matter of capital, it is true that we take a very low rank as compared with other companies. We have seen West Australian Mines capitalised at £200,000, £250,000, £375,000, £600,000, and even at £700,000. Besides these figures, our modest capital of £30,000 seems insignificant; yet when the profits come to be divided, I think you will not regret that there are so few to participate in them. (Applause.) If any shareholder has any questions to ask I shall be very pleased to answer them.

A SHAREHOLDER: I would only ask, in reference to your last remark, whether, in the opinion of the directors, the capital of the company is sufficient.

The CHAIRMAN: Yes; in the opinion of the directors it is quite ample. They have not yet used 1-10th of the amount set aside for working capital, but if it should be necessary at any future time to raise more, there is £5000 additional capital provided by the prospectus for future issue. But, producing gold from the start, we do not want much working capital; in fact, we have been told by the agents that they will not call upon us for any more money. (Hear, bear.)

There being no resolution to submit, the proceedings terminated.

## THE SOUTH-WEST AFRICA COMPANY, LIMITED.

The second ordinary general meeting of the shareholders in the South-West Africa Company (Limited) was held on Wednesday, at the Cannon-street Hotel, the chair being occupied by Mr. GEORGE CAWSTON.

The SECRETARY (Mr. C. Launspach) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—The

creates a large and increasing business between Europe and the traders of the colony. Very profitable results are expected from it, particularly as the management is in the hands of the Hamburg firm of C. Woermann, who have dispatched a thoroughly competent and experienced local manager to look after the company's interests in the Protectorate. Thus the company's rights have been considerably increased since the issue of the last report, and the directors consider that with the settlement of the boundaries, which will shortly be made, the company will be enabled to start immediately upon the development of these enormous territories. With the above arrangements the mineral and land rights of the company will extend to 50,000 and 30,000 square miles respectively. This enormous area precludes it from adequately working it with its own resources, and, therefore, the directors purpose to throw open large areas to individual prospectors on similar lines to those which have been followed successfully by the British South Africa Company in Matabeleland and Mashonaland. Large portions of our northern territory are well adapted for colonisation by Europeans, and it is hoped that co-operation with the Imperial Government will lead to a very speedy population of the district. The country now, which during the first year or two which followed the granting of the concession was disorganized and disturbed by dissensions, not only amongst the tribes themselves, but between the tribes and the German Government, has now been thoroughly pacified, and, thanks to the skill, patience, and firmness of the Imperial Commissioner, Withboul, the great enemy of German rule, has become an adherent of the Imperial Government. The financial position of the company, without any debts, with £50,000 in hand, and with a further £50,000 in the hands of the companies in which it holds the controlling influence, the enormous area covered by the concessions in territories where nearly every known mineral has been found, should, with the loyal assistance and hearty co-operation which the company has always experienced at the hands of the German Government, lead at no distant date to a successful development which will compare favourably with many other companies existing in South Africa. The Chairman concluded by moving the adoption of the report and accounts.

Mr. WICHMANN seconded the motion.

A SHAREHOLDER asked that a report of the Chairman's speech might be sent to the shareholders, and remarked upon the rather ancient date of the account.

The CHAIRMAN, in reply, said the directors would have much pleasure in sending out a report of the proceedings at the meeting. The accounts were made up on June 30 in each year, and it had been impossible to get them made up to June, 1895, in time for the meeting. The directors had, therefore, to present accounts up to June in the previous year. Now that the country was more settled it was hoped that the accounts up to June, 1895, would be submitted before the end of the year. There would be no unnecessary delay incurred. The expenditure in the accounts was necessitated by the fact that they were bound under the terms of the concession to spend £30,000 in the first four years towards proving or developing the country. The railway survey had cost the company £12,000, and the remainder of the money had been spent in mining exploration. One result of the expenditure had been to prove the value of the immense deposits of copper at Otavi, which gave 30 per cent. of copper, and was 45 feet deep and 34 feet wide. (Applause.)

The motion for the adoption of the report and accounts was then put, and carried unanimously.

On the motion of Mr. WICHMANN, the retiring directors—Messrs. Cawton, Davis, and Gale—were re-elected, and the auditors—Messrs. Cooper Brothers and Co.—having been reappointed, the proceedings terminated with a vote of thanks to the Chairman.

## ISLE OF MAN MINING COMPANY.

### Annual Meeting.

The 42nd annual meeting of the Isle of Man Mining Company was held at the Grosvenor Hotel, Chester, on Tuesday, Mr. T. DIXON presiding, in the absence of the Chairman, Mr. Frederick North. There were also present Messrs. F. Potts, James Mackee, E. H. Perrin, H. Churton (directors), John Johnson, G. R. Griffith, J. S. Latham, H. A. Latham, J. B. Light, W. Jackson, R. T. Wickham, S. J. B. Dickson, F. E. Roberts, Robt. Roberts, A. Barker, Major Bryan-Johnson, Mr. R. L. Barker (secretary), and Captain Kitto (manager).

The CHAIRMAN, in moving the adoption of the report and statement of accounts, said they were met under pleasanter circumstances than for some years past. The directors thought the result of the past year's working had been very satisfactory. The richer quality of the ore raised, and the continued improvement in the value of lead and silver had resulted in an average advance of £1 3s. per ton above the prices of the previous year. The ore raisings had been 4700 tons, the same as in the previous year, and the profit £10,109 14s. 2d., as against £4477 1s. 1d. The improvement in the price obtained for the ore was accounted for by an improvement in the price of lead to the extent of about 10s. per ton, and by the increased quantity of silver contained in the ore raised to the value of 13s. per ton. At Beckwith's they were sinking their main engine shaft below the 275 for a new level, which would be pushed on as expeditiously as possible. At the 275 fathom level (their present bottom driving) the lode in driving west had not been opened out as well as they expected, although it was quite possible in crossing to the north the richest part of the lode might yet be found. This would shortly be proved. It was, however, gratifying to find that there was a decided improvement in the value of the lode driving east, compared with what they had in the level above, which would compensate them for any disappointment caused by the falling off in value of the wet end. Potts' shaft was down to within a short distance of the 185 fathom level, showing that proper attention had been paid to the opening-out of the eastern portion of the property from which they raised the richest ores. Since the annual report had been published there had been a further discovery in extending the crosscut north from Potts' shaft, 115 fathoms below surface, which, if it continued, there was reason to expect would enhance the value of the reserves, the ground being unexplored to the surface.

Mr. MACKEE seconded the resolution, which was unanimously carried, and it was resolved:—"That a dividend at the rate of 8 per cent. on the ordinary share capital of the company, amounting to 8s. per share (of which 5s. per share has already been paid in anticipation) be declared; and that a dividend at the same rate on the preference capital (of which one half-year at the rate of 7½ per cent. has already been paid) be also declared."

Mr. ROBERT ROBERTS enquired why they were carrying over such a large balance this year.

The CHAIRMAN: We have, unfortunately, liabilities to meet with reference to the failure of the Panther Lead Mine, which left some bills on our hands which they are unable to pay up.

Mr. ROBERT ROBERTS: You keep £3000 in hand.

The CHAIRMAN: It is not quite so much.

Mr. ROBERT ROBERTS: The balance is £3439.

Mr. MACKEE: That is the whole amount without deducting the dividend.

Mr. ROBERT ROBERTS: No doubt.

The SECRETARY (Mr. Barker) pointed out that there would not be very much to carry over after the payment of a dividend.

Mr. ROBERT ROBERTS: It is on account of the bad debts you may?

The SECRETARY: Not entirely.

On the motion of Mr. G. B. GRIFFITH, seconded by Mr. J. B. LIGHT, the retiring directors, Messrs. F. North and E. H. Perrin, were re-appointed.

The auditor, Mr. Charles Coppach, was also re-elected on the position of Major BRYAN JOHNSON, seconded by Mr. W. JACKSON.

Mr. J. JOHNSON, in proposing a vote of thanks to the secretary, manager, and other officials, remarked that it was the most pro-

sperous year they had had of late. Captain Kitto had carried out the work in a highly creditable and satisfactory manner.

Mr. F. E. ROBERTS seconded the motion, which was carried, and On the proposition of Mr. F. E. ROBERTS, seconded by Mr. ALFRED BARKER, a similar compliment was accorded to the Chairman.

## THE PARRAL CONSOLIDATED GOLD AND SILVER MINES, LIMITED.

The ordinary general meeting of the shareholders in the Parral Consolidated Gold and Silver Mines, Limited, was held on Thursday at Winchester House, B.C., the chair being occupied by Mr. DOUGLAS W. WALES.

The SECRETARY (Mr. J. C. Masters) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen,—Before asking you to adopt this report and balance-sheet, it has been put before you, I think it is as well that I should make a few remarks on one or two points connected with the accounts. We have on this occasion prepared a balance-sheet which shows you that we have made a profit on the ore and bullion account of £1620, which has been carried to profit and loss account. This does not really represent the true state of affairs so far as the value of the ore we have got on the dump is concerned. We have taken the value of that ore for account purposes at £784 18s. 4d., which is exactly what it cost us to extract it. At present we have on that dump something like 2500 tons, which, at a low estimate made by Mr. Beckmann, who is absolutely reliable on these points, will realize £3 a ton net directly our mill is ready to deal with it. The apparent loss shown in the accounts, therefore, is merely a matter of adjustment. Before proceeding any further in connection with the accounts, I think it would be as well to give you an idea of how this company has got into its present position of affairs. Previously to this meeting, which is the first occasion on which we have had the pleasure of seeing you, the company was, to all intents and purposes, a private company, and although this is the second report, it is the first one so far as you are concerned. The report submitted last year really concerned only half a dozen people who were principally interested in the mine, and we were at the time only a mere handful of shareholders. Since then we have been proceeding with the developments in a most economical and systematic manner, and we have now arrived at a state of affairs where the tunnel that I mentioned on the last occasion is practically completed. A letter we had yesterday, dated the 9th of this month, tells us there is only about 50 feet more to drive, and as during the previous week they drove 31 feet, we may fairly conclude that we may at any moment receive a telegram that the tunnel or connection has been completed. Of course, there is the question of laying the rails and putting in the timber, and then we shall be ready to take out the whole of the ore in the upper levels through the tunnel to the crushing floors of the mill, which we hope will be running in a few weeks. The rainy season has cost us a few weeks' delay, for it is then difficult to send the ore away to the smelters. Still, a few weeks will, I think, see us making a daily profit, which will be continuous, and we hope that it will be increased by the aid of the machinery which we expect to put up in addition to that already erected. We do not tell you exactly the quantity of ore sold, beyond the remark in the report to the effect that since April, 1894, the quantity of ore sold has been 515 tons, yielding a net return at the mines of over £15,000. That is only up to about two months ago. Since then we have been sending more and more, and as we receive our returns from the smelters for what has been sent them, we add the remainder to the dump to be dealt with by the machinery, because although it is worth £4 or £5 a ton it is not worth while spending £4 or £5 for freight to the railway and for smelters' charges. About 1/6th of the ore we have taken out has been sent to the smelters, and the amount on the dump at present comes, as I have told you, to 2500 tons or more, and our manager estimates it as worth about £3 a ton net, put through the mill. In addition to that we have an amount of ore between the levels, which it would be difficult to estimate. Until the mill is up we shall continue to send the ore to the smelters in small quantities, and by doing so we are at present more than repaying the expenses at the mine, which will not amount to more than £150. Thus we are not only paying off the small amount which has been expended in development beyond what we have received on the sales of the ore, but we are building up a small credit on the other side, which, I think, you will all consider, under the circumstances, a favourable result. I do not think I can add a great deal to what I have already said. The accounts, so far as I can see, speak for themselves, but if any other information is required I shall be very glad to give it. On technical matters I do not think I can do better than refer you to Mr. Harman, our colleague, who is an expert on mining matters, and to whom we look for guidance upon any subject of that kind. If the accounts do not seem clear I cannot do better than refer you to Mr. Woodthorpe, who is now in the room, and who is our auditor. If there is any technicality in the figures I have no doubt he will explain it in a manner satisfactory to you. (Applause.) The Chairman concluded by moving the adoption of the report and accounts.

Mr. F. E. HARMAN seconded the motion.

The CHAIRMAN, in answer to questions, said that so far the directors had not drawn a penny in fees. The item of £784, which represented the amount of ore on the dump, had been put down at that figure because the auditors thought they were only justified in putting down exactly what the ore had cost to produce, and not what its value was. Assuming that the 2500 tons were worth £3 a ton—and that was certainly a fair valuation—this would total £7500.

A SHAREHOLDER: How many thousands of tons of ore are there in sight?

The CHAIRMAN: As I have already said, that is merely a matter of measurement. The lode is in many places 25 feet wide. The maps are on the wall and you can make the calculation for yourselves. I should think there is at least a quarter of a million of tons of ore.

The motion for the adoption of the report and accounts was then put, and carried unanimously.

Mr. J. H. THORNBURNE, in moving the re-election of Mr. D. W. Wales and Mr. Hugh Stanton to the board, said that from his knowledge of the inner working of the company, he could testify to the great care and ability that these gentlemen had bestowed upon the affairs of the company.

Mr. WEST seconded the motion, which was carried unanimously.

On the motion of Mr. COOKES, the auditors were re-appointed at a remuneration of 30 guineas.

Mr. HARMAN, in response to an invitation to speak, said: I joined the board some months ago at the suggestion of some of my friends, and naturally I carefully investigated all the documents and data in London to ascertain who my co-directors were, looked at the plans and the report, and came to the conclusion that I had been asked to join a very good company. Since then I have taken a considerable interest in it, and my only regret is that I have not taken a larger one, for I have seen no reason whatever to alter my opinion with regard to the capabilities of the mine, and I have no hesitation whatever in saying that, so far as I can see, and from the reports of Mr. Beckmann, it appears to be a very good one indeed. I have great pleasure as a technical man in bearing testimony to Mr. Beckmann's ability as a mining expert. It is very seldom that assays correspond with results—they are generally a great deal higher—but in this case I have found that Mr. Beckmann's assays correspond with the results, and that is the highest testimony I can think of at the present time. The machinery which is now in course of erection is suitable for treating the oxidized ores on the surface, rather than the sulphurated ores at a depth. It is especially adapted for this, is cheap, and is highly recommended to us by gentlemen who have worked it in America. The mill is called the Bryan mill. It is not a mill very much known outside America, but for oxidized ores containing gold and silver it is very highly spoken of in the States.

With regard to the amount of ore in sight, as I have not visited the mine I cannot speak with any degree of accuracy, but from the plans I have no hesitation in saying the amount must be very considerable indeed. The width of the lode at all points is good, and so far as I have been able to ascertain not a foot of ground has been worked which has not been profitably, and that is a great deal to say. We were fortunate in driving the adit to have struck the lode, and to continue driving on it, so that the material being got out of the adit is as mineralized as that got out of the mine. With regard to treating the richer ores at depth we have received a careful report from the Colorado Ironworks and Mining Machinery Company, who had a sample of ore to other ores, we might prepare to treat the sulphurated ores by such machinery as might be suitable. If you like I will read you the report of the Colorado Company in full. It is as follows:—"The ore which you shipped us in April, and which reached us on the 24th of that month, we have been working on, making careful analysis and elaborate test for the past two weeks, and the results are as follows:—In the first place, we tried three or four days by purely amalgamation, and found that by crushing down until all passed through a 60 mesh screen, we could save 46 per cent. of the value, and no more. Our amalgamation was done with very great care, in a revolving barrel, and with long exposure to the mercury. We conclude, then, as suggested in one of your letters, that it is not practicable to work this ore by amalgamation alone. We then tested roasting concentrate, &c., and finally reached the following process, to wit: We took 100 lbs. of the ore, crushed to 60 mesh, amalgamated all the gold and silver out of it that we could get, then concentrated at the rate of 4 tons into 1; then roasted this concentrate two hours and a half at as low a heat as would produce the proper effect, and in the last half-hour we charged with 100 lbs. of salt for chloridising. We then took the whole from the roasting furnace, put it in the revolving amalgamated barrel with clean mercury, and made a saving of 95 per cent. of the gold and 83 per cent. of the silver, and we hand you herewith the buttons of gold and silver resulting from this 100 lbs. of ore as above. The saving which we report above can be made in actual practice continuously with the process by which we produced these results, that is to say, crush the ore to 60 mesh, amalgamate out of all the gold and silver that the quicksilver will take up, then concentrate four into one, then roast these concentrates something like three hours, charging from 1/2 to 2 per cent. of salt, as experience shall dictate, in the last half-hour of the roast, then amalgamate the roasted ore. We have taken much pains with this lot of ore, and feel satisfied that we have reached a reliable conclusion as to the best method of treating it; and if the ore which you have sent us is such as that you have it in quantities that can be relied upon, and think best to send us a cartload to run through our testing mill on the same system as that above outlined, we believe that the conclusion we have reached will be confirmed by such larger test. Of course, it is always safer to test with large quantities, but the quantity which you have sent us is sufficient to justify us in the conclusion that a larger test at least is justified, and that unless you are satisfied from other sources that the process we have outlined is thoroughly adaptable to your ore, it might be best to have the larger test made. This you will use your judgment about, of course. If you have plenty of that ore, there is no doubt that excellent results will be reached by this kind of treatment, but certainly never by raw amalgamation. Yours very truly, Colorado Iron Works, By J. W. Nesmith, President.—P.S.—We neglected to state above that our assays of your ore, as tested, show it to contain 10 38-100 ounces of silver, and 162-100 ounces of gold." That, gentlemen, is very satisfactory so far as it goes, and I have no doubt we shall send them a large quantity to make sure. At the same time I may state that in a private letter I have received from another firm in Mexico we are asked to send some of our ore there to treat, because they say they can get better results. If, however, we get the other process as cheap as is expected, I think you will have every reason to be satisfied. (Hear, hear.) I may say that we have received from the smelters some genuine mine samples, which I am sure the directors would be happy to show to any of the shareholders who may happen to be near the office; and, in conclusion, I may state that it is an interesting fact that the dip of our vein is becoming somewhat more perpendicular, and I have very little doubt whatever that we shall find it continues to be as it looks at present—a true fissure vein of great value. (Applause.)

Subsequently an extraordinary general meeting was held, when, upon the motion of the CHAIRMAN, resolutions amending the Articles of Association as to the payment of directors' fees and the issue of share warrants, passed at a previous meeting, were unanimously confirmed.

The proceedings then terminated.

## THE ENGLISH AND FRENCH GOLD MINES SYNDICATE, LIMITED.

The first general (statutory) meeting of the English and French Gold Mines Syndicate (Limited) was held on Thursday, Mr. SYNNOTT occupied the chair, in the absence of Mr. A. Morley Fletcher.

The SECRETARY read the notice convening the meeting.

The CHAIRMAN said: This meeting has been called, as you are aware, in compliance with the Companies Acts, and there is no business to transact beyond the formal holding of the meeting. At the same time I have no doubt you will be interested to hear the progress made by the company since its incorporation. I trust that what I shall now have the pleasure to tell you will more than come up to your expectations. The board sent to South Africa one of its directors, Mr. Mori, whose efforts on behalf of the company have been of a most successful nature. We have purchased property equal to 900 claims on the farm Grootpaardekraal, Witwatersrand. These claims have already been sold to the French North Rand Estates Gold Mining Company (Limited); a good report on the property has been obtained, and development work commenced, and, so far, the prospects are of the most encouraging nature. Negotiations have just been concluded by which a firm of French bankers have undertaken to subscribe £20,000 for working capital, and the directors feel sure that this property will turn out a great success. When I tell you that within a few days of our purchase we were offered a substantial premium, I think you will see that our investment is justified. The company has also purchased 93 claims in Mashonaland and Matabeleland which have been sold to the Rhodesia Gold Mines and Exploring Company (Limited), in which also £20,000 working capital has been assured. The directors expect, within one or two months from this date, to have realized in cash from the sale of these properties sufficient to pay over 100 per cent. on the issued capital of the company. Whether it will be actually distributed in dividends will be a matter for consideration, and the company will still hold large blocks of the shares of the two companies which I have mentioned. Mr. Mori, who has now returned to England, will shortly leave again for South Africa, and we expect that before he goes even we shall have carried through other business for the profit of the company. The directors firmly believe in the lucrative nature of investments in South African land and property, and when they next have the pleasure of meeting the shareholders, they fully expect it will be after having distributed large dividends.

— The directors of the MONTANA MINING COMPANY (LIMITED) have declared a dividend of 3d. per share (free of income tax) payable October 15. The transfer-books of the company will be closed from October 25 to 28, both days inclusive.

— The warrants for an interim dividend of 3s. per share on the fully paid and 1s. 6d. per share on the 10s. paid shares of the GOLD ESTATES OF AUSTRALIA (LIMITED) have been posted.

## HAMMOND'S MATABELE GOLD MINES DEVELOPMENT.

THE directors of this company, and a few personal friends, gave Mr. Andrew Robert Hammond a farewell dinner at the Hôtel Metropole on Wednesday evening last, in view of his leaving for Bulawayo, in order to take charge of the company's property in Matabeleland as managing director and consulting engineer to the company. The chair was occupied by Mr. ROBERT GLADSTONE, the Chairman of the company; among the guests present being Messrs. J. S. Wood, M. Macfie, H. Jennings, S. Murray, F. L. Gardner, Julius Meyer, Paul, Myers, Braikenridge, and a number of other Stock Exchange gentlemen.

After the usual toasts were given, the CHAIRMAN, in a speech expatiated upon the sterling qualities that were to be found in Mr. Hammond, from his long mining experience in California, Mexico, and South Africa, and, in fact, in every mining district of importance. He felt sure that the property could not be in better hands for exploitation and development, Mr. Hammond being one of the first practical mining men who arrived in South Africa, and has been for some time occupied in exploiting work in the territories south of the Zambesi.

Mr. A. R. HAMMOND, in responding, gave a lengthy and amusing narrative of his travels through Matabeleland and Bechuanaland; he also stated that the claims which had been acquired were some of the finest in the whole of the Rhodesia. Having personally examined and tested them himself, he could, therefore, guarantee the statements that had been made in respect to the valuable reefs secured by this company. He dwelt upon the mineral resources of Matabeleland by describing the extent of the gold belt reaching from Bechuanaland across Matabeleland into Mashonaland, a distance of 350 miles, and from 60 to 80 miles in width—the largest continuous gold belt in the known world, and stated that the ores throughout this vast section were above the average as to the richness of the mineral grade. He looked upon the fact that in the course of a very short period the gold regions of Rhodesia, as this country is now called, will far overshadow the wealth of the Transvaal, and that Bulawayo will be the coming place which will eventually completely eclipse Johannesburg, as, instead of this country having the bank formation, it consisted of clearly defined reefs, having all the appearance of true fissure veins that have been already partially worked some thousands of years ago by the ancients, and, even in more recent times, by the early Portuguese. Evidently from the débris which they had left on the dumps they had been satisfied by the extreme richness of the upper formation, and had only been stopped for want of scientific appliances to work at a greater depth than some 35 to 40 feet. He (Mr. Hammond) was glad to find on the board as one of his colleagues Mr. Gregory, who was one of the greatest experts of mining in England; and, with his reputation and experience of mining (extending over a period of 40 years) he knew that Mr. Gregory would not have consented to become a director of this company unless he had satisfied himself in every way that the undertaking was sound and genuine in all respects, and one which would put money in the pockets of the shareholders. Mr. Hammond also stated he was taking out with him two complete plants of the latest improved machinery, and said that, so far as he was concerned, no time would be lost in developing the properties, and in getting returns for the shareholders, as he supposed as men of business that was what they wanted from him, and he was taking out two experienced mechanical engineers to erect and run the machinery.

Mr. F. L. GARDNER stated that he had very much pleasure in bearing testimony to what had already been said about Mr. Hammond. He himself had been connected with mining all his life, and had known Mr. Hammond for a number of years. He knew of no better man to develop a property, and he should always be glad to take Mr. Hammond's opinion on a mining property, and on his word he (Mr. Gardner) would be quite prepared to part with his cheque for any property that he was purchasing.

Mr. EDIVINE, after proposing the health of the Chairman and directors, also success to Hammond's Gold Mines Development (Limited), stated that he had become a shareholder in the company for two reasons:—Firstly, he had convinced himself that the mines bought by the company were good ones; and, secondly, he had known Mr. Hammond by reputation for a considerable time, and felt assured that in his hands the shareholders' money would be spent to the best advantage and the property well and efficiently developed.

**THE NELLY AND PIONEER REEFS GOLD MINING COMPANY (LIMITED).**—The statutory general meeting of the shareholders in the Nelly and Pioneer Reefs Gold Mining Company (Limited) was held on Monday, at the Cannon-street Hotel, the chair being occupied by Mr. Edward J. Castle, Q.C.—The Chairman, in his opening remarks, stated that the company was registered on June 11 last, with a capital of £65,000 in shares of £1 each—the whole of which were issued and fully-paid—for the purpose of acquiring and dealing with a number of old workings, comprising 259 claims, about 50 miles from Bulawayo. Some of these had been very extensively worked, one being 90 feet deep. The property had been very favourably reported on by the engineer of the Mashonaland Agency, and the latest information was contained in a telegram from Mr. H. L. Stokes, their local director, who was now out there and was looking after their interests. This telegram, which was dated September 21, was as follows:—"On Pioneer reef, including Pot Luck and Middy, 11 shafts being rank; most shafts sunk on the vein, 80 feet to 140 feet deep. In four shafts the reefs are exposed, but in two shafts the prospects are not encouraging; five shafts still unfinished.—Nelly reef. No. 1 shaft 70 feet deep; reef 6 feet wide, carrying good free gold throughout, 3 feet 6 inches of which pan assays 2 ounces 10 dwt. per ton. Nelly and Pioneer have received from British South Africa Company a grant of about 12,000 acres vacant land, adjoining Pioneer block of farms; very valuable concession. An accurate survey of this and Nelly reef completed. About 1000 claims"—then follows an illegible word which probably means have been—"recently pegged on Nelly and Pioneer land. Gum-tree planting doing very well. I have to advise you all mining claims have been transferred to Nelly and Pioneer Company, and land transfer will be registered in the course of a few days." The Chairman, in conclusion, stated that the shareholders would be promptly put into possession of any further information which might arrive.—The proceedings then terminated.

**WOLVERAND GOLD MINES.**—An extraordinary general meeting of the Wolverand Gold Mines (Limited) was held on Wednesday, at Winchester House, for the purpose of confirming resolutions passed at a previous meeting in favour of the voluntary winding-up and reconstruction.—Mr. Curwen Sisteron presided, and moved that the resolutions, which provided for the voluntarily winding-up, and the appointment of Mr. E. N. Dawe and Mr. H. C. Morris as liquidators for the purpose, be approved. At the previous meeting, with the exception of two dissentients, the shareholders unanimously approved the policy of the board for the reconstruction of the company—that was, for the sale of the company's property in South Africa to Messrs. Lewis and Marks, in order that the Wolverand Gold Mines might be systematically and thoroughly worked.—Mr. Herbert Stroyan seconded the motion.—Mr. H. Barkwith took exception to a vote of £1000 to the directors, and to the advance of money to Messrs. Lewis and Marks, and moved an amendment in favour of an allotment or 50,000 instead of 36,000 shares to the present shareholders, and the offer to these shareholders in the first place of any future shares to be issued.—Mr. Thomas Johnson seconded the amendment.—The amendment was put to the meeting, but found no supporters except the mover and seconder.—Mr. E. N. Dawe, the secretary, stated that the opposition to the resolutions represented only 251 shares out of a total of 96,000.—The motion for confirmation of the resolutions was then agreed to.—Subsequently the two shareholders above-mentioned withdrew their dissent in writing, after having had the scheme explained to them. The confirmation of the original resolutions was, therefore, adopted unanimously.

No promotion money of any description has been or will be paid, the whole of the Capital thus forming Working Capital, with the exception of the registration and costs of this issue.

The LISTS will OPEN TO-DAY, Saturday, 28th inst., and will CLOSE at 4 p.m. on WEDNESDAY, 2nd October, for both Town and Country.

## ANGLO-AFRICAN GOLD PROPERTIES, LIMITED.

Incorporated under the Companies Acts, 1862 to 1893.  
Capital, £200,000, in 200,000 Shares of £1 each.

Present Issue of £150,000,

the whole of which (with the exception of the amount taken by the Directors and their friends) are now offered for public subscription at par. Payable as follows:—5s. on Application, 5s. on Allotment, and the balance subject to a month's call.

### DIRECTORS.

Sir JAMES D. MACKENZIE, Bart., 15, Redcliffe Square, S.W.  
R. G. WEBSTER, Esq., J.P., M.P., 83, Belgrave Road, S.W.

WILLIAM JOSEPH LAMB, Esq. (Lamb and Co., Limited),  
7, Philpot Lane, E.C.

T. G. H. GLYNN, Esq., 2, Templeton Place, S.W.

JOHN McMILLAN, Esq., 5, Paper Buildings, Temple, E.C.

### BROKERS.

LONDON—Messrs. JAMES CALVERT and CO., 27, Throgmorton Street, and Stock Exchange.

GLASGOW—Messrs. DOUGLAS CAIRNEY and CO., West Nile Street, and Stock Exchange.

### BANKERS.

LONDON AND SOUTH-WESTERN BANK (Limited), & Branches.

### SOLICITORS.

Messrs. DIX and WARLOW, 16, Serjeants' Inn, E.C.

### AUDITORS.

Messrs. BROADS, PATERSON, and CO., 1, Walbrook, E.C.

SECRETARY—A. G. FINCH.

### TEMPORARY OFFICES.

3, NEWMAN'S COURT, CORNHILL, LONDON, E.C.

## ANGLO-AFRICAN GOLD PROPERTIES (LIMITED)

### PROSPECTUS.

This Company has been formed primarily to acquire and deal with mining and other properties and interests in South Africa, and for the other purposes specified in its Memorandum of Association.

2. To purchase, develop, and resell valuable gold mining and other properties upon the various goldfields in South Africa and Australia.

3. To advance money for the development of mines, and to acquire interests therein for making such advances.

4. To employ agents and prospectors, and to peg out claims for this Company, or to secure offers of newly discovered gold mines and other properties.

5. To acquire or take option of purchase of concessions or gold mines, or of blocks of shares in mining or land companies, to provide working capital for and to assist in the reconstruction of existing gold mining and other companies.

In issuing this Prospectus the Directors would draw special attention to the very profitable nature of an investment in this class of security, not only as regards the dividends paid, but also in the enhanced value of the shares, or which the following companies are instances:—

	Price of Share.	Closing Price, 21st Sept.
Bechuanaland Exploration Company .....	£1	3½
Oceanic Company, Limited .....	1	5½
Anglo-French Exploration Company .....	1	7
British South Africa Company .....	1	8½
South African Gold Trust .....	1	10½
Consolidated Goldfields of South Africa (Ordinary) .....	1	15½
Transvaal and General Association .....	1	3½
Johannesburg Consolidated Investment .....	1	5½

As a consequence of the extraordinary discoveries of gold in South Africa, a large number of companies have within the past few months been placed on the market with varying success, and the Directors consider that an opportunity now exists which seldom occurs for an investment such as the shares of this Company offer.

An undertaking like this, which is practically a parent company, and from which a number of subsidiary companies must necessarily spring, it is difficult to limit the profits which may accrue. The ordinary profit derived from the promotion of one such property alone should suffice to pay a handsome dividend on the issued capital. The revenue from the purchase and sale of properties is also a most important item, the profits in these transactions being at times very considerable.

## ANGLO-AFRICAN GOLD PROPERTIES (LIMITED)

It is also a recognised fact that the advancing of money for mining purposes is one of the most profitable of financial operations; mineowners, where short of working capital, being willing to concede almost anything to obtain monetary assistance at the crucial moment.

It is proposed to pay especial attention to Properties in Potchefstroom and on the Rand, and with this object in view the Directors will have under immediate consideration certain proposals for acquiring interests in, or otherwise dealing with what they believe to be very valuable concessions in that district.

Arrangements will be made to secure the services of first class mining engineers to advise the Directors as to the acquisition of properties and to conduct prospecting and mining operations.

Several influential financiers who are taking an interest in this enterprise are concerned in other South African undertakings, and their active co-operation in securing profitable business for this Company may be looked for.

Several valuable options have been offered to the Company, one of which, dated 24th September, 1895, between Jacob Buden and the Company, has been accepted, and the others are under consideration.

No further contracts have been entered into, no promotion money has been or will be paid, therefore the Company will start free from any expense, except that of formation and registration.

The allotment will be made as early as possible after the subscription list is closed. In case no allotment is made, the amount paid on application will be returned. If the amount of shares allotted be less than the amount applied for, the excess payment on application will be applied towards the amount due upon allotment. Failure to pay any instalment when due will render previous payments liable to forfeiture.

A Stock Exchange quotation will be applied for as soon as practicable.

The Memorandum and Articles of Association may be seen by intending subscribers at the offices of the Company's Solicitors.

Applications on the accompanying form, with a remittance of the amount deposited on the sum applied for, should be forwarded to the Secretary or the Bankers of the Company.

Prospectuses and Forms of Application can be obtained at the Company's Offices and of its Bankers, Brokers, and Solicitors.

London, September 24th, 1895.

## ANGLO-AFRICAN GOLD PROPERTIES (LIMITED)

### FORM OF APPLICATION FOR SHARES.

This Form to be filled up and sent, together with cheque for the amount payable on application, to the Company's Bankers, the London and South-Western Bank, Limited, Fenchurch Street, E.C.

### ANGLO-AFRICAN GOLD PROPERTIES, LIMITED.

To the Directors of the  
ANGLO-AFRICAN GOLD PROPERTIES, LIMITED.

Gentlemen:

Having paid to your Bankers the sum of £ ..... being a deposit of Five Shillings per Share on Application for ..... Shares of £ ..... each in the above-named Company, I request you to allow me that number of shares, and I agree to accept and pay for the same, or any less number, upon the terms and conditions of the Prospectus, dated the 24th day of September, 1895, subject to the Memorandum and Articles of Association of the Company, and I authorise you to enter my name on the Register of Members in respect of the Shares so allotted to me, and I agree to pay the further Instalments upon such allotted Shares as required in the terms of the said Prospectus, and I agree with the Company, as Trustees for the Directors and other persons liable, to waive any further compliance with Section 38 of the Companies Act, 1867, than is contained in the said Prospectus.

Ordinary Signatures .....  
Name in Full .....  
Address in Full .....  
Profession or Occupation .....  
Date ..... 1895.

## THE FEDERATED INSTITUTION OF MINING ENGINEERS.

### MEETING IN NORTH STAFFORDSHIRE.

THE annual general meeting of this institute was held on Wednesday, at the headquarters of the 1st Staffordshire and Shropshire Artillery Volunteers, Hanley. Mr. W. N. ATKINSON (H.M. Inspector of Mines for North Staffordshire) occupied the chair, and there was a good attendance. Among those present were Messrs. H. R. Makepeace (Assistant-Government Inspector for North Staffordshire), E. B. Wain (Norton), W. J. Hayward (West Bromwich), J. Richard Haines (Longton), W. F. Howard (Chesterfield), W. E. Scott (H.M. Inspector, Birmingham), A. Smith (Birmingham), J. Strick (Shelton), A. Stoke (H.M. Inspector, Midland District), J. Barrowman (Hamilton), J. Nevin (Mifflin), R. H. Cole (Endon), J. J. Forgie (Bothwell), G. A. Mitchell (Glasgow), W. Deacon (Blackwell), T. W. H. Mitchell (Barnsley), J. Longbottom (Barnsley), J. Blaikie (Newcastle), F. Silvester (Newcastle), J. H. Merrivale (Acklington), R. Guthrie, J. L. Hedley, A. C. Kayel, and M. Walton Brown, secretary (Newcastle-on-Tyne), G. E. Coke (Nottingham), C. J. Oliver (Chesterfield), G. A. Mitcheson (Longton), A. M. Henshaw (Talk-o'-th' Hill), W. H. Waine (Hulme), T. E. Storey (Weston Coyney), C. E. de Rance (Shelton), Joel Settle (Levett), H. Hughes (Dudley), J. Vivian (Whitehaven), T. M. Favell (Etruria), W. Heath (Sneyd, Burslem), A. Hassam (Fenton), F. N. Atkinson (Congleton), J. J. Prest (Shelton), J. C. Cadman (Silverdale), J. Heath (Sneyd), Winstanley (Manchester), Professor F. Clowes, T. Chystle (Longton), E. Thomson (Nottingham), and Eardley (Kidsgrove).

Objects of interest were shown by the following:—"Best" miners' safety lamp, with electrical lighting apparatus, by Messrs. Ackroyd and Best, of Morley, near Leeds. Models of Woodworth's progressive expansion gear, for winding engines, and automatic controller for intermittent delivery of coal tubs on inclines, &c., by Mr. B. Woodworth, of Fenton. Snyer's patent elastic clutch, of 100 horse power, and photos of various installations of the clutch; examples of patent reducing and surplus valves, the "Row" heater and condenser, patent steam traps, pistons and piston-rod packings, drawings of an alteration being made to a large pair of 36 inch diameter cylinders, at the Sneyd Colliery, Burslem, by Messrs. Cowlishaw, Walker, and Co. (Limited), of Etruria. Various mining appliances, by Messrs. J. Davis and Son, Derby. Drawing of sinking pump, by Messrs. W. H. Bailey and Co., of Salford, Manchester. Signal-bells, electric signal-bells, specially designed for colliery use (damp and dust proof); telephones for colliery work, safety lamps, with Messrs. Heath and Fro't's patent paraffin burners; shaft and porch safety lamps, and various mining specialties, by Mr. H. M. Edwards, of Wakefield. Mining tools, &c., by the Hardy Patent Pick Company (Limited), Granger's patent compound steam-jet nozzles, for forced draught, blowing and exhausting, &c., by Mr. W. A. Granger, London. Aluminium safety lamps, by Messrs. John Mills and Sons (Limited), Newcastle-on-Tyne. Sections of shot and shell, tubes, and fuses, by the 1st Shropshire and Staffordshire Artillery Volunteers. Steel girders, by Mr. E. Thompson. A patent corrugated steel pit-tub, by Messrs. H. I. Williams and Co., Fenton, Stoke-on-Trent. Messrs. Silvester, Newcastle-under-Lyme, exhibited their celebrated revolving through-way tipplers, screens, injectors, and other colliery appliances, which are in extensive and satisfactory use in the United Kingdom and abroad.

At the opening of the meeting, Mr. E. B. WAIN (Whitfield) offered the members a hearty welcome to North Staffordshire, and said the local members trusted to make the visit a profitable and enjoyable one.

Mr. WALTON BROWN, the secretary, then read the annual report of the council, in which he gave a detailed account of the formation and progress of the institution. It appeared from this document that the North Staffordshire Institute of Mining and Mechanical Engineers joined the Federation in July, 1891, the last to join being the Mining Institute of Scotland, in July, 1893. The report then recited the objects of the federation. The following table exhibited the progress of the Institution since its formation:—

Year.	No. of Members.	No. of Non-Federated.
1889-90	1189	50
1890-91	1187	9
1891-92	1415	19
1892-93	1633	19
1893-94	2068	123
1894-95	2199	109

Details were supplied respecting the work of the several institutes, as well as of the federation.

The

it was being rapidly developed, and they believed would in the future have a greater influence than it had had in the past. He assured them that he would do all he could to advance the welfare of the institute. (Hear, hear.) The President proposed a vote of thanks to Mr. Atkinson, the retiring President. He belonged to a family well known all over the country in mining circles, and had himself done much in the way of original investigation, the results of which he had placed before the institute. He had been a worthy President, and had spoken with authority on every subject he took up.

The motion was carried with heartiness, and Mr. ATKINSON briefly responded.

**"The Depth to Productive Coal Measures between the Warwickshire and Lancashire Coal Fields."**

Mr. CHARLES E. DE RANCE, in a paper on the above subject, referred to the report of the Royal Coal Commission containing the proceedings of a Committee appointed to enquire into the "Probability of Finding Coal under the Permian, New Red Sandstone, and other Superincumbent Strata," an enquiry which lasted from October, 1866, to June, 1868. He says his communication is intended as a comment on the information then elicited, as regards our knowledge in 1895 of the area described in the title. A very large number of borings have been made for the purposes of water supply and mineral trial since 1868, but much still remains to be learnt. Dr. (then Mr. Edward) Hull, in his evidence before the Royal Commission (in 1868), points out that the Warwickshire coal field is a lip of the old original coal basin, intervening and extending further southward than usual between the Silurian barrier west of Birmingham, and the Cambrian area west of Charnwood forest. Dr. Hull considers this ancient barrier extends to the mouth of the Wash. He also points out the existence of another east and west barrier, which he believes separates the North Staffordshire coal field from that of Cheshire beneath the red rocks, and further to cause the Permian rocks overlying the coal measures to be disposed in distinct basins or areas. Dr. Hull says:—"I have been much impressed with the extreme dissimilarity of the Permian rocks of the two areas. This dissimilarity is so great that it is almost impossible to suppose that they were deposited in the same basin; and when I was endeavouring to ascertain whether there were any grounds for supposing that the Carboniferous rocks had been thrown up in such a manner as to form separate basins for the deposition of the two areas, I found that on the east side of the plain of Cheshire, in the neighbourhood of Congleton, we have the Yoredale beds and the Carboniferous limestone brought up so as to separate the coal field of North Staffordshire from that of Cheshire, and though originally I, along with other geologists, attributed this to the existence of a great fault. . . . I now think that that fault has been overestimated, and is not sufficient to account for the absence of the whole of the Carboniferous beds down to the mountain limestone in that neighbourhood. . . . Besides this, we know from the researches of the late Mr. Binney that there are Permian beds existing unconformably on Yoredale rocks a few miles north of Leek, which shows that the upheaval and the denudation of the Lower Carboniferous rocks in this district took place before the Permian period. . . . When we cross the Cheshire plain to the west we also find on the southern margin of the Flintshire coal field Lower Carboniferous rocks brought up partly along the line of a fault. Now, that fault and that upheaval I consider in all probability as referrible to the pre-Permian period; and I think it is exceedingly probable that all along a line which may be drawn from Macclesfield on the east to the neighbourhood of Hope, in Flintshire, to the west, the Lower Carboniferous rocks have been brought up in such a manner as to have formed what I was looking for—namely, a barrier between the Permian area of South Lancashire and Cheshire, and the Permian area of the Midland counties and Shropshire." Dr. Hull assumes that coal exists under a large area to the north of the barrier, including the peninsula of the Hundred of Wirral, and points out that the Denbigh coal field appeared to extend persistently eastward, and the North Staffordshire coal field westward, and considers that south of the barrier an absolute continuity of the measures obtains. Mr. de Rance, after referring to various borings which have taken place between Liverpool and Manchester during the last 20 years, says no evidence has arisen to shake Dr. Hull's view that a pre-Permian ridge of old rocks formed the southern margin of the Lancashire and Cheshire Permian rocks, and nowhere in England or Wales have an assemblage of Permian fossils been found south of that line, Triassic pebble beds resting direct on the Millstone Grit, both in Flintshire and Staffordshire, and there is still every reason to believe that Dr. Hull's central ridge traverses a portion of Cheshire and renders it unproductive of coal. On the other hand, if it be admitted that the lower mottled sandstone is really the lower bed of the true Permian, the neighbourhood of Eastham, in the Cheshire Hundred of Wirral, should be in the future the site of a very important coal field, at a depth of less than 1000 feet. So far as the Permian cover is concerned, as regards the depth of coal measures to be penetrated to commercial coal we have no evidence, but six miles to the west the pebble-beds of the Trias rest direct on the thick seams of the Neston coal field, which is capable of general correlation with the middle coal measures of the opposite shore of the river Dee, in Flint and Bagillt. In South Lancashire the exact position of the coal seams formerly worked at Croxteth Park is doubtful, but in any case they are directly overlaid by Permian and New Red Sandstones, without the intervention of the upper coal measures, which were formerly well seen at Whiston, near Liverpool, and in the Levenshulme railway cutting, near Manchester, in which occurs 443 feet of green, purple and mottled marls, with about a dozen beds of limestone, of which the thickest is 4½ feet. In 1838 Sir Roderick Murchison found the anelid shell *Spirorbis (micoschonchus) Carbonaria* in the limestone of the Shropshire and Manchester upper coal measures. In 1864 Dr. Hull described the calcareous chorialopsum of the upper coal measures as the maximum of Britain, no less than six beds of limestone occurring with an aggregate thickness of 15 feet; and stated as the Permian rocks overlie unconformably, other limestones may occur, a surmise the Levenshulme cutting has proved to be correct. Mr. de Rance supplied an abstract of the measures passed through in borings for water supply at Liverpool and in search of coal at Northwich, observing that the knowledge of the thickness of the Triassic rock is complete. The latter borings probably commenced about 400 feet below the face of the Lias, and were continued 2610 feet. Estimating the very least probable thickness of the beds beneath, no less than 1300 feet would have had to be traversed by the boring to reach the Carboniferous rocks, or a total depth from the surface of 3810 feet, or 1060 feet deeper than might have been expected, from the facts and information known before the commencement of the experiment. Looking to the effect of pressure and high temperature, the low prices ruling of coal, which without an extraordinary expansion of trade, which, there is no reason to anticipate, will remain at their present figure until coal supply becomes scarce, the depth of 3810 feet will render the new red plain of Cheshire unremunerative, even if no other measures intervene and other circumstances are favourable. But there is every reason to believe that a thick series of purple marls and Red Sandstone, without coals of commercial importance, overlie the productive coal measures to the south

of the old barrier indicated by Dr. Hull, these measures being considered by him as of Permian age deposited in a separate basin to the fossiliferous Permian beds of the Mersey basin; but recent trials in various directions in the Midland counties point to these beds being really referrible to the upper portion of the Carboniferous formation, and to belong to that portion of the upper coal measures which lies above the *Spirorbis* limestone, and is not less than 1200 feet in vertical extent. Sections in the Manchester Ship Canal, in the Runcorn area, prove that the maximum thickness known in Britain of the upper mottled sandstone is there reached, which is not less than 600 feet. As regards the pebble beds of the Bunter series, railway section and borings for water in Liverpool, also gave a maximum record, and are certainly not less than 1000 feet in thickness. The phrase or name pebble-beds is derived from the loose conglomerates of middle Bunter age of Cannock Chase, where they are easily dug with a spade, and this type also holds in North Staffordshire, but in Cheshire, and still more in Lancashire, this rock forms hard building stone. Mr. de Rance next described the results of a deep boring for coal at Havelock, near Stockport, remarking that, unfortunately, at present, there is no evidence whether or not the various sub-divisions of the Triassic rocks do or do not taper off against the Carboniferous slope as they do further south, but the Alsager boring tends to show that they do not, and in that case the depth to productive coal measures in South Cheshire, North Staffordshire, and Shropshire is far greater than was anticipated by Sir Andrew Ramsay. A very interesting paper was recently read to the Geological Society, London, by Mr. J. Crosbie Cantrell, on "The Occurrence of *Spirorbis* Limestone and Thin Coals in so-called Permian Rocks of the Wyre Forest." Mr. Cantrell points out that in the West Bromwich district a coal seam, 10 inches in thickness, with a fire-clay of 3 feet 8 inches, occurs between 170 feet of red sand and marls and over 511 feet of the same, and states that Professor Hull considered them new coal measures, and Professor Jukes Permian rocks containing a coal seam. The *Spirorbis* limestone at Sandwell Park occurred at 369 feet from the surface, or 575 feet of red and purple sandstone and marls, at 200 feet from their base, and Mr. Cantrell points out that the ordinary *Spirorbis* limestone of the district occurs in blue and yellow clays, orange and olive sandstones and grits, about 50 feet below the red beds, and he states only 670 feet of rocks intervene between the base of the red rocks and the thick coal seam at Sandwell Park Colliery, while no less than 900 feet at Halesowen pointed to two distinct horizons of *Spirorbis* limestone. Mr. Cantrell summarises the South Staffordshire pits, and says that since the work of Professor Jukes sinkings have proved that the red rocks must all be regarded as of upper coal-measure age, because (1) they contained fossils have an upper coal-measure facies; (2) they contain bands of limestone characterised by the presence of *Spirorbis pusillus*; (3) those parts of the series which have not yielded coal measure fossils are apparently similar, lithologically, to those parts which have yielded such fossils; (4) there is no known stratigraphical break between the fossiliferous and the non-fossiliferous parts of the red series; (5) the only marked breaks are in the base and the summit of the red series; (6) the break at the base is locally great, but is elsewhere imperceptible. The late Professor Jukes showed in his "Memoir on the South Staffordshire Coal Field" that a band of Silurian chortic rocks extended across from Shropshire, through South Staffordshire, to Warwickshire, and formed dry land in this area, at the time that Carboniferous Limestone and Millstone Grits were elsewhere deposited, and he regarded the beds underlying the Warwickshire coal field as of the age they have been re-discovered to be by Professor Lapworth in 1882, who discovered fossils of Cambrian age in the shales, of which Professor Jukes wrote in 1853, after speaking of the gentle westerly dip which the Silurian strata of the South Staffordshire coal field had assumed before the deposition of the coal measures:—That this gradual rise to the east was continued yet further in that direction beyond the bounds of our South Staffordshire district is rendered probable by the fact that rocks still older than the Upper Silurian (perhaps older than any Silurian) appear in the Warwickshire and Leicestershire coal fields, with the coal measures resting directly upon them. The truth of this theoretical surmise has since been established by the borings made between the Warwickshire coal field and the Charnwood Forest rocks. Having given details as to sinkings in various parts of Warwickshire, he concluded as follows:—In Warwickshire the Bunter beds in the Nuneaton district, and the Keuper waterstones, rest transgressively on the quasi-Permians, which are strictly conformable to the *Spirorbis* limestone of the undoubted coal measures beneath and the coal measures themselves; whilst further east, towards Leicestershire, the Keuper marls rest direct on coal-bearing measures, occurring sporadically, or on the very ancient rocks rising originally as islands, separating rocks of carbonaceous growth. In the light of these investigations, it will be seen that the late Sir Andrew Ramsay under-estimated the depth to commercial coal seams in the Midland counties, more especially in the area of maximum development of the Trias formation; but the whole gist of the accumulated information tends to show the extreme variety of the conditions obtaining at any one point, and that each small area must be judged and considered on its merits, and that without actual boring the judgment of the expert, however experienced, may be at fault. It certainly might have been supposed, looking to the occurrence of the quasi-Permian beds in Denbighshire, North and South Staffordshire, and Warwickshire, in very considerable force, that would have been present in the Sherbrook valley, but 327 feet of Bunter pebble-beds rested direct on coal measures, and at the Huntington pumping-station of the South Staffordshire Waterworks the same conditions obtain. From these facts it appears that three series of rocks intervene between the Keuper marls and the commercial coal fields of Lancashire and Warwickshire. Proceeding from north to south, the Triassic group attenuate from the base upwards, the Bunter series being absent, the basement beds of the Keuper, though present, being only a few inches, the water-stones and Keuper marls being much less than half their thickness. Proceeding from north to south, the true Permians are also found to be governed by the same conditions, and none occur south of Dr. Hull's barrier in central Cheshire; on the other hand, the coarse sandstone and conglomerates, the variegated and purple marls, which included bands of *Spirorbis* limestone, are constantly absent. Proceeding from south to north of Dr. Hull's barrier, the Triassic pebble beds constantly resting direct on the middle coal measures, the extensive denudations that commenced with the first appearance of the red dust at the close of the Carboniferous period, ascribed by Mr. Binney to volcanic origin, continuing in great force through the whole of the period between the formation of the upper commercial coal seams and the deposition of the Triassic pebble beds.

Mr. W. B. Scott observed that Mr. de Rance had not told them what he would like to do. No doubt what he would like to see done was the carrying out of the suggestion made by a South Staffordshire coalowner to the Royal Commission referred to in the paper—that there should be an expenditure of £200,000 or £300,000 in borings. If he had urged that they would be coming to something practical, because they knew how difficult it was to persuade landowners to spend money on boring. If a

proposition was made by such an influential meeting as that, that a sum ought to be applied to putting down bore-holes, they might arrive at something valuable. He and Mr. Atkinson went some time ago to see some borings to ascertain if certain seams continued from Rugeley in the direction of North Staffordshire. What Lord Ferrers wanted to discover was whether there was any continuation to Derbyshire on one side, and Warwickshire on the other. On the western side there was the difficulty of the boundary fault, which was unproven. Bore-holes might be put down, and only in that way could the extension of the coal field be proved.

Mr. J. H. MERIVALE deprecated asking for Government aid to conduct the boring, which should be done by the landowners. It was to the interest of gentlemen owning estates that the boring should be made.

Mr. JOHN VIVIAN said the Commissioners of Woods and Forests had a large income which they did not spend in developing or experimenting. If Government explorations were to be made it was clearly to their interests to develop national property. There was a tendency on the part of landowners to develop their estates, but he did not know whether that was altogether in the interests of the coal trade generally, for there appeared to be an overplus of coal. But they were living in a Free Trade age, and no doubt there would be constant development. He was conducting some explorations in Suffolk, and he knew that there was a great difficulty in raising £5000 in the district; even many of the largest landowners refused to contribute.

Mr. HERBERT W. HUGHES said the mapping of areas round the South Staffordshire coalfield as Permian when they were not Permian had retarded the development, as owners had delayed making trials so long as the areas in the old coal field remained unworked. Fossil evidence undoubtedly proved the red rocks of South Staffordshire to be upper coal measures of considerably earlier age than the measures of the older known portions of the North and South Staffordshire coal fields. Probably coal existed continuously between the South Staffordshire and Warwickshire coal fields, but whether or not at a workable depth was doubtful. Near the South Staffordshire coal field the extension eastward was complicated by the existence of ridges of Silurian rocks, concealed by newer strata. Probably there was greater chance of success in tracing the coal seams if the search be made from the Warwickshire side.

Mr. F. G. MEACHAM said as regarded the Warwickshire part of the paper, that it seemed highly probable that the upper coal measures, at least in the metals, were not conformable to the lower measures. Some years ago a very careful survey of the district of Hamstead was made, previous to the opening out of colliery in a south-easterly direction, and evidence of dislocation diligently sought, but for miles the red rocks of the upper coal measures and overlying Trias gave no indication of any serious faulting; yet in the workings when roads were driven dislocations were found, which certainly would show on the surface if the upper beds had been deposited prior to the dislocation. And the amount of dislocation indicated a force which would affect a great area before it was spent. He was inclined to think with Mr. de Rance that the depth at which coal had been met with in the district spoken of by Mr. de Rance would be great. From Hamstead, in an easterly direction, mines would be much deeper until the upheaved Warwickshire field was reached. The great depths would again assert themselves under the widespread Triassic territory.

A MEMBER thought with regard to the actual production of coal they might leave it to the necessities as they arose.

After some remarks from Mr. DE RANCE, Mr. SCOTT (in answer to the PRESIDENT) said he never intended to advocate that the Government should spend money for boring. The engineers should induce the landowners to do that.

On the motion of the PRESIDENT, seconded by Mr. J. BLAIKIE, a vote of thanks was accorded to Mr. de Rance for his valuable paper.

**The Blasting Efficiency of Explosives.**

The SECRETARY read a paper supplied by Bergassessor Winkhaus on "The Blasting Efficiency of Explosives." In the experiments described the Tazul leaden block was used. Within leaden cylinders, which enclosed a cylindrical hollow space, a definite quantity of the explosive under investigation was made to explode, and the resulting expansion of the hollow space was a measure of the detonating force of the explosive. As a result, the following table was given of the explosive force developed within a given volume in comparison with gelatine-dynamite:

Name of Explosive.	Weight of equal volumes in comparison with Gelatine-Dynamite.	Explosive Force of equal Volumes in comparison with Gelatine-Dynamite.
Gelatine-Dynamite . . . . .	1'00	1'000
Kohlen-Carbonite . . . . .	0'73	0'339
Wetter-Dynamite . . . . .	0'95	0'559
Progressoite . . . . .	0'60	0'353
Westfalite . . . . .	0'55	0'333
Dahmenit A . . . . .	0'53	0'408
Roburite . . . . .	0'61	0'509

A discussion followed on a paper prepared by Professor Vivian B. Lewes, and given at a previous meeting, on "Mining Explosives."

The SECRETARY observed that Government statistics showed that a greater proportion of accidents occurred with the use of the higher explosives than with blasting powder.

Mr. STOKES, criticising Professor Lewes's argument that in consequence of the danger of carbon monoxide being generated in dusty pits by the use of blasting powder, that explosive should be abolished from mines, said the greatest sinner among the blasting agents, according to tables published, was gelignite, and he suggested that they should get rid of the greatest sinner first. Again, two of the most serious explosions for some time past had occurred in pits where dynamite was used, and that explosion was stated to give off the least carbon monoxide. Two points in the paper were worthy of special notice—viz., the inferior quality of some gunpowder used in mines, and the explosive properties of carbon monoxide, especially in pits subject to gob fires, and those which were dusty.

Mr. A. C. KAYLL (Newcastle-on-Tyne) continued the discussion. He said the sensitiveness to ignition of coal-gas mixtures, compared with mixtures of pit-gas, was very evident from the experiments made in the North of England, when all the safety explosives fired coal-gas mixtures both with the shots stemmed and unstemmed, but in pit-gas none of them fired the mixture when stemmed, and only four of the explosives out of the seven fired the gas when unstemmed. Professor Lewes told them that in the decomposition of methan a dual action took place which required an appreciable time, this retarding influence of the chemical changes before ignition took place. He gave as a reason why fire-damp was not so readily ignited by explosives, but (he continued) directly inflammable gases other than methane were introduced, no time was given for the products of combustion to sufficiently cool themselves, and the mixture was fired. He (Mr. Kayll) gathered from these remarks that when gaseous mixtures were ignited by explosives there ought to be in the case of mixtures of fire-damp an appreciable interval of time between the detonation of the shot and the ignition of the fire-damp mixture, but when a coal-gas mixture was employed there could be no such interval, the coal-gas would be ignited immediately on the detonation of the shot. The experiments

made by the North of England Explosives Committee did not bear this out, for in their report there were seven instances of delayed ignitions of gaseous mixtures. Six of these were coal-gas mixtures and only one pit-gas ignition. Of the six cases, bellite gave one, ammonite gave two, roburite gave one, and carbonite gave two. The shots in each instance were stemmed. The question arose why should they have retarded ignition of coal-gas mixtures when, as Professor Lewes said, there was no dual action taking place in the decomposition of coal-gas, and therefore there should be no retarding action? In the North of England report the works of several authors were quoted as explaining that "mere momentary contact of a highly-heated body was not sufficient to cause an ignition of an explosive mixture which would be readily ignited by the same body at a lower temperature if left longer in contact with it." Professor Lewes had endeavoured to point out "chemically" what explosives should do, but unfortunately in practice explosives sometimes had a way of not doing what they should do, in spite of chemical deductions. The subject still appeared in its infancy, and he (Mr. Kayll) agreed with Mr. D. M. D. Stuart. They must go into the history of combustion and detonation before they could explain what now appeared as the phenomenal results when compared with chemical analyses.

Mr. DEACON said he had read Professor Lewes's paper with very much interest, and he thought it would add very greatly to the value of the literature of the Institution. From the scientific point of view the paper was, no doubt, highly successful, but he ventured to suggest that the commercial view of the question had not received quite the amount of consideration it deserved. Professor Lewes dealt in rather too sweeping a manner with blasting-powder, which he proposed without any qualification to banish from use in mines, even where fire-damp was not known, on the ground that it was capable of setting up an explosion with coal dust alone. The latter was also, perhaps, too sweeping, as much depended upon the quality of the coal dust and its dryness as to whether it would inflame from a hot or not. There were many coal dusts which would not explode under the ordinary conditions of shot-firing in the mine. Then, again, if a dusty mine were properly watered, or the dust removed, it was difficult to see where the danger of using powder in such case applied. In the substitution of high explosives for powder they did not seem to get out of the difficulty of the risk of firing gas, from the fact that the detonator used for firing the explosive very often gave a flash of considerable magnitude. Professor Lewes had stated that the abolition of the use of blasting-powder would do away with three-fourths of the deaths annually reported as being caused by explosives; but he argued that this was an exaggeration, and he avowed that the abolition of powder for blasting coal would undoubtedly seriously affect its economical production. It appeared to him that until some safe high explosive, which was absolutely flameless and could be ignited without a flash from a detonator, was discovered, powder would have to continue to be used in those mines where the risks were infinitesimal, unless a large number of pits were to be closed, and the interests of certain districts seriously damaged.

(To be continued).

## WESTERN AUSTRALIA'S GOLD OUTPUT.

From January 1, 1886, to July 31, 1895.\*

Year.	KIMBERLEY.			PILBARA.		
	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.
1886	302 0 0	£1,147 12 0	—	—	—	—
1887	4,873 0 0	18,517 8 0	—	—	—	—
1888	3,493 0 0	13,273 8 0	—	—	—	—
1889	2,464 0 0	9,363 4 0	11,170 0 0	£42,446 0 0	—	—
1890	4,474 0 0	17,001 4 0	16,055 6 6	61,010 3 9	—	—
1891	2,669 12 8	10,258 10 10	11,875 0 0	45,125 0 0	—	—
1892	1,088 16 22	4,137 12 3	12,892 16 0	48,992 12 10	—	—
1893	1,621 13 23	6,162 9 0	11,698 10 0	44,454 6 0	—	—
1894	588 12 7	2,236 16 4	16,254 10 0	61,767 2 0	—	—
1895	442 16 0	1,682 12 9	13,010 18 0	49,441 8 5	—	—
Totals	21,047 0 0	83,780 17 2	93,957 0 6	350,236 13 0	—	—
Year.	YILGARN.			AMBURTON.		
	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.
1886	—	—	—	—	—	—
1887	—	—	—	—	—	—
1888	—	—	—	—	—	—
1889	1,858 10 0	7,062 6 0	—	—	—	—
1890	2,277 0 0	8,652 12 0	—	—	—	—
1891	12,833 5 23	48,766 10 8	838 14 10	3,187 2 9	—	—
1892	21,209 9 18	80,596 1 1	0 14 0	2 13 2	—	—
1893	75,744 10 23	287,829 5 8	467 14 22	1,777 8 8	—	—
1894	31,498 7 17	119,693 17 1	285 5 10	1,084 0 8	—	—
1895	14,387 8 18	54,672 5 3	200 19 6	763 13 1	—	—
Totals	159,808 13 3	607,272 17 9	1,793 8 0	6,814 18 4	—	—
Year.	MURCHISON.			DUNDAS.		
	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.
1886	—	—	—	—	—	—
1887	—	—	—	—	—	—
1888	—	—	—	—	—	—
1889	—	—	—	—	—	—
1890	—	—	—	—	—	—
1891	2,064 8 16	7,844 16 11	—	—	—	—
1892	24,356 9 12	92,554 12 1	—	—	—	—
1893	21,210 8 22	80,599 13 11	147 19 11	562 5 11	—	—
1894	52,946 6 11	201,196 0 7	228 7 12	867 16 0	—	—
1895	34,202 1 0	129,971 11 10	\$11 0 0	41 16 0	—	—
Totals	134,780 14 13	512,166 15 4	387 6 23	1471 18 5	—	—
Year.	COOLGARDIE.			TOTALS.		
	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.	Quantity. oz. dwt. gr.	Value. £ s. d.
1886	—	—	302 0 0	£1,147 12 0	—	—
1887	—	—	4,873 0 0	18,517 8 0	—	—
1888	—	—	3,493 0 0	13,273 8 0	—	—
1889	—	—	15,492 10 0	58,871 10 0	—	—
1890	—	—	22,806 6 6	86,663 19 9	—	—
1891	—	—	30,311 1 9	91,151,182 1 2	—	—
1892	—	—	59,548 6 4	226,283 11 5	—	—
1893	—	—	110,890 18 5	421,385 9 2	—	—
1894	—	—	400,253 6 8	207,131 6 6	757,098 19 10	—
1895	66,219 12 21	251,634 12 11	128,475 15 21	488,208 0 3	—	—
Totals	171,549 9 8	651,887 19 7	583,324 4 3	2,216,631 19 7	—	—

\* The official valuation is £5 16s. per ounce.

† Six months ended June 30.

‡ Declared April 5, 1894. Export for 1894 included with Yilgarn previous return.

§ Return not to hand.

THE STANLEY SYNDICATE (LIMITED).—Among the most recent registrations connected with Western Australia is the Stanley Syndicate (Limited). The capital of the company is £20,000, in £50 shares, which were privately subscribed by directors and friends. The Chairman of directors is Sir William Marling, Bart., of Stanley Park, Stroud. The representative of the syndicate in Australia is Mr. J. Francis Marles, F.G.S., with whom we published, on October 13 last year, an interview on his arrival from Coolgardie. Mr. Marles has now arrived in Coolgardie, and will proceed to inspect several properties at once.

## NEW ISSUES.

### THE IMPERIAL WESTERN AUSTRALIAN CORPORATION (LIMITED).

With a capital of £500,000, this corporation has been formed for the purpose of conducting a business usually carried on by an exploration and finance corporation, to prospect, acquire, and develop, and otherwise deal with, mining and other properties in the colony of Western Australia and elsewhere; to promote sub-companies, to purchase, lease, or work such properties, to purchase, resell, subdivide, lease, or otherwise deal with lands, to obtain concessions, and construct railways, tramways, electric lighting, harbour and other works, in the colony of Western Australia. In furtherance of the above objects the directors have acquired the following properties, paying for them fully paid-up shares only:—The Mount Prophecy Gold Mine, the Perseverance Gold Mine, the Western Shaw Gold Mines, certain patents for improvement in dry crushing; also an interest in the Steam Packet and Transport Company about to be established on the Swan river; and the right to take over, with the approval of the directors, a public crusher at Toweranna Creek, in North-West Australia, where a number of leases amounting to 105 acres have been taken up, and are being worked. At the same time the corporation is in treaty for the purchase of certain mining and other properties and rights in Western Australia, which the directors anticipate acquiring on favourable terms. For full details relating to the above properties, we refer our readers to the advertisement on another page, from which they will also learn that the directors have arranged a sale to a subsidiary company, at a profit to the corporation, of the Mount Prophecy and Perseverance Gold Mines, whilst arrangements have been made for the issue, at an early date, of the Western Australia Steam Packet and Transport Company (Limited), the whole of the required working capital of such subsidiary companies having already been subscribed. Thus it will be seen that, considering its range of operations, the company has every facility and every opportunity of becoming a success. If it should by any means happen to fail in one branch there are other branches which may turn out prosperous enough to minimise this failure. One important feature is the patent rights which have been secured for a dry process for stamping and crushing, for there is a great field in Western Australia for the employment of this class of crushing.

### THE ANGLO-AFRICAN GOLD PROPERTIES (LIMITED).

The capital of this company is £200,000 in shares of £1 each. It has been formed primarily to acquire and deal with mining and other properties, and interests, in South Africa, and for the other purposes specified in its Memorandum of Association. To purchase, develop, and resell valuable gold mining and other properties, upon the various gold fields in South Africa and Australia; to advance money for the development of mines, and to acquire interest therein for making advances; to employ agents and prospectors, and to peg out claims for this company, and to secure offers of newly-discovered gold mines and other properties; to acquire and take option of purchase of concessions or gold mines, or of blocks of shares in mining or land companies, and to provide capital for, and to assist in the reconstruction of existing gold mining and other companies. The prospectus states that "the directors would draw special attention to the very profitable nature of an investment in this class of security, not only as regards the dividends paid, but also in the enhanced value of the shares, of which the following companies are instances:—Bechuanaland Exploration Company, Oceana Company (Limited), Anglo-French Exploration Company, British South Africa Company, South African Gold Trust, Consolidated Gold Fields of South Africa (Ordinary), Transvaal General Association, Johannesburg Consolidated Investment. It is proposed to pay special attention to properties in Potchefstroom and on the Rand, and with this object in view the directors will have under immediate consideration certain proposals for acquiring interests in, or otherwise dealing with, what they believe to be very valuable concessions in that district. Arrangements will be made to secure the services of first-class mining engineers to advise the directors as to the acquisition of properties and to conduct prospecting and mining operations. Several influential financiers who are taking an interest in this enterprise are concerned in other South African undertakings, and their active co-operation in securing profitable business for this company may be looked for."

### THE GIBRALTAR CONSOLIDATED GOLD MINES (LIMITED).

This company has been formed, with a capital of £300,000, in 300,000 shares of £1 each, of which £50,000 will be a cash working capital, for the purpose of acquiring certain mining areas, making a total of about 82 acres, situated in the gold field Adelong, county Wyannd, New South Wales, and including the Gibraltar Hill Gold Mining area, and six adjoining areas and leases with water-rights. The property was in the first instance selected by the Anglo-Australian Exploration Company, through their well-known mining engineer, Mr. M. Eissler. "The Gibraltar Mine," the prospectus states, "is a remarkably rich property, and the average yield of gold obtained from the several crushings of ore taken indiscriminately from the lode operated upon, places this property in the forefront of the gold-producing mines of Australia." As to the lode formation, it is said:—"Highly mineralised rich and well-defined quartz lodes within a zone from 600 to 800 feet wide, and most of them traversing the area belonging to the property occur in the granite formation of the Gibraltar Hill." A main fissure lode called the "Gibraltar," has, it is said, been developed, from which it is estimated that over £400,000 worth of gold has been won from the surface workings. It is stated that "1596 tons of ore taken from the Radcliffe and Perkins shafts, and treated at Wilson and Ritchie's battery, have yielded 5969 ounces." The working conditions are described as "favourable in all respects," labour and cost of transport being cheap.

### PADDINGTON CONSOLS (LIMITED).

The West Australian Exploring and Finance Corporation (Limited) and the London and Globe Finance Corporation (Ltd.) offer for subscription the capital of £175,000 of the Paddington Consols (Limited), all of which has been guaranteed by them jointly. The company has been formed for the purpose of acquiring and working seven gold mining leases, known as the Paddington, Paddington Extended, Iolanthe, Gaelic, Tryit, Reison's Reward, and Reison's Extended, situated in the celebrated Hannan's district, together comprising a total area of 80 acres or thereabouts. Various reports have been made on the property from time to time (all prior, however, to recent developments) by the following experts, viz.:—Professor William Nicholsons; Mr. W. H. Mathews, general manager of Bayley's Reward Gold Mining Company; Mr. E. S. King, metallurgist;

and Mr. David Lindsay, F.R.G.S. The property in its entirety is strongly recommended by Mr. Charles Kaufman, M.E., the consulting engineer to the West Australian Exploring and Finance and the London and Globe Finance Corporations (Limited). "Having regard to the valuable leases to be acquired," says the prospectus, "and the large working capital provided, the directors feel justified in expressing their confidence that handsome dividends will accrue to the shareholders as soon as the property is equipped with an appropriate plant of crushing and milling machinery, which it is their intention to erect forthwith. It is proposed to erect the crushing plant in a favourable position on or near the Paddington group, and to cart the ore from the Reison's Reward (about half a mile distant) to the mill." Mr. Charles Kaufman, M.E., who was specially instructed to examine and report on the Paddington group for the West Australian Exploring and Finance Corporation (Limited), in a brief cable report received by that Corporation, dated September 5, states:—"Paddington Group: The situation of the property is all that can be desired. The property is in the Hannan's district, and covers an area of 67 acres. In addition to the mineral zone running through, the mines are very extensive, of a highly favourable character for large deposits of ore bodies. I strongly recommend it. The property is a good one."

### THE "NIAGARA" PULVERISER.

A LARGE and representative gathering paid a visit of inspection to the works of Messrs. Easton, Anderson and Goolden (Limited), at Erith, on Thursday last. The visitors had an opportunity of inspecting the magnificent engineering shops of the above company, including, as they do, a collection of heavy machine tools probably unequalled in the kingdom, together with a very fine dynamo-room, lately added. The special object of the visit, however, was to inspect an improved dry crusher, which is now being placed upon the market by Messrs. Easton, Anderson and Goolden. This machine is the patent of Mr. W. H. Coward, and presents several distinct points of advantage over its predecessors. In general appearance it is not unlike the Cyclops and several other crushers with which the mining public is well acquainted. It consists of a cast-iron drum resting upon friction rollers and revolving vertically at about 35 revolutions per minute. The circular portion of the drum is protected by a number of chilled cast-iron plates, upon which the crushing takes place. The actual crusher consists of a heavy roller whose weight in the machine exhibited was about 13 cwt. This roller is pressed down by means of heavy springs controlled by suitable screws, so that the pressure when ordinary hard quartz is being crushed is about 9 tons to the square inch. The shaft by which the roll is carried is supported by a pivoted bearing and sliding block, so as to allow considerable play, whilst a sliding wedge, actuated by a screw and handwheel, allows the roller to be lifted to a greater or lesser degree off its circular bed when coarse crushing is

The Public SUBSCRIPTION LIST will OPEN on TUESDAY, 1st October, 1895, at 10 a.m., and CLOSE the same day at 4 p.m. for both TOWN and COUNTRY.

**THE WEST AUSTRALIAN AND FINANCE CORPORATION (LIMITED).**

**LONDON AND GLOBE FINANCE CORPORATION (LIMITED).**  
Offer for Subscription the Capital of the undermentioned Issue, all of which has been guaranteed by them jointly.

## PADDINGTON CONSOLS, LIMITED,

Incorporated under the Companies Acts, 1862 to 1890.  
To acquire the following Lease, viz.:—PADDINGTON, PADDINGTON EXTENDED, IOLANTHE, GAELIC, TRYIT, REISON'S REWARD and REISON'S EXTENDED, embracing a Gold Mining area of about 80 acres, situated in the Hannan's Mining District, Coolgardie Gold Fields, Western Australia.

### CAPITAL ... £175,000

WHICH ARE NOW OFFERED FOR PUBLIC SUBSCRIPTION AT PAR.  
Payable Ten Shillings per Share on Application and Ten Shillings per Share on Allotment.  
Cash Working Capital, £50,000.

**DIRECTORS.**  
Lieut.-General the Honourable SOMERSET J. GOUGH-CALTHORPE (Director Golden Crown, Ltd.)  
The Right Honourable the EARL OF DONOUGHMORE, K.C.M.G.  
Lieut.-Colonel EDMUND C. CRADOCK-HARTOPP (Director Mainland Consols, Limited).  
SINCLAIR MACLEAY, Esq. (Chairman Wealth of Nations, Limited).  
HENRY FELHAM-CLINTON, Esq. (Director London and Globe Finance Corporation, Limited).

"Lieut.-General Gough-Calthorpe, being a Director of the Vendor Company, will not act until after allotment.  
BANKERS.

LONDON:—PRESCOTT, DIMSDALE, CAVE, TUGWELL & CO. (LIMITED), 60, Cornhill, E.C.  
AUSTRALIA:—THE UNION BANK OF AUSTRALIA (LIMITED), Coolgardie.

BROKERS.  
Messrs. MAGGARD, HALE & PIXLEY, 29, Austin Friars, E.C., and Stock Exchange.  
Messrs. HARDIE & TURNBULL, 42, George Street, Edinburgh.

SOCIETIES.  
Messrs. BURN & BERRIDGE, 11, Old Broad Street, E.C.

CONSULTING ENGINEER.  
CHARLES KAUFMAN, Esq., M.E., Coolgardie.

AUDITORS.  
Messrs. MONKHOUSE, GODDARD & CO., 29, St. Swithin's Lane, E.C.  
SECRETARY AND OFFICES.  
CHARLES LLOYD, Esq., 54, Old Broad Street, London, E.C.

### PROSPECTUS.

This Company has been formed for the purpose of acquiring and working several Gold Mining Leases, known as the Paddington, Paddington Extended, Iolanthé, Gaelic, Tryit, Reison's Reward, and Reison's Extended, situated in the celebrated Hannan's Mining district, Coolgardie Gold Fields, Western Australia, and together comprising a total area of 80 acres of these abouts.

Various reports have been made on the property from time to time (all prior to, or up to, the recent developments) by the following experts, viz.:—Professor Wm. Nicholas, F.G.S., Lecturer on Mining in the University of Melbourne; Mr. W. H. Mathew, General Manager of Bayley's Reward Claim Gold Mining Company (Limited); Mr. E. S. King, Metallurgist, and Mr. David Lindsay, F.R.G.S. The property in its entirety is strongly recommended by Mr. Charles Kaufman, M.E., the Consulting Engineer to the West Australian Exploring and Finance and the London and Globe Finance Corporations (Limited).

The Reports referred to are so numerous and extensive that it is impossible to epitomise them in a brief prospectus, but the following are extracts therefrom, and the full reports are open to the inspection of intending investors at the offices of the Company's Solicitors.

**PADDINGTON.**—Mr. W. H. MATTHEWS says:—"20 feet south of the north boundary an open cut 2 feet deep and 13 feet long has been opened on the west side of the lode, exposing a portion of the reef 3 feet wide, composed of quartz and small veins of iron, and for the full length (10 feet) exposing gold very freely, both coarse and fine. A bulk sample of 20 lbs. weight, taken from the north end of the opening (full width of lode exposed 3 feet), gave by amalgamation assay equal to 30 ounces 14 dwts. per ton, thus proving it to be very rich indeed, and which I believe to be of no greater value than other portions of the opening. Opposite the open cut, or 25 feet east, the No. 1 shaft has been sunk to the depth of 28 feet, passing through from 10 to 12 feet of lode matter, composed of friable quartz, containing patches and small bands of limestone of a favourable character, at times exposing fine gold. . . . No. 2 shaft is 44 yards south of No. 1, and is sunk on the underlay of the lode. The reef at the top is 4 feet 6 inches wide, ranging in thickness as it continues from 3 feet to 18 inches, with good walls, and has every appearance of continuing. . . . The development of this property so far as exposed shows very satisfactory results. The open cut at its present depth is exceedingly rich, and I see no reason why it should not continue and maintain its usual gold-bearing character."

**PADDINGTON.**—Mr. E. S. KING states:—"Most of the work done has been towards the North boundary, midway between the East and West pegs. . . . From samples taken right across the lode at the bottom of open cut I obtained excellent results, equal to 27 ounces to the ton. This result I fully believe to be under the average contents of all stone exposed by this opening, coarse gold being visible in nearly every piece broken. Only a few feet to the South of this another trial has been made of this same description, exposing similar stone."

**PADDINGTON.**—Professor WILLIAM NICHOLAS concludes his report as follows:—"This Mine has impressed me that it is very likely to prove a Mine that will be worked at considerable profit, and that its reefs will prove permanent in depth."

**IOLANTHE.**—Mr. MATTHEWS reports:—"No. 1 Shaft is within a few feet of the South boundary, and is sunk to the depth of 23 feet in lode formation 2 feet 6 inches wide, containing fine gold from the top up to its present depth.

No. 2 Shaft is 21 yards north of No. 1, its present depth being

43 feet from surface, and passes through the lode formation, which varies from 3 to 4 feet in width, and which is doubtless the Paddington lode. The shaft being in a direct line, and the character of the stone being the same, places this matter beyond all doubt whatever. The reef in the shaft and the material taken from it shows gold freely disseminated through the stone, finer, but of the same character as the adjoining mine, Block No. 559, with the same clean and well-defined walls, and the usual friable enclosing rock that contains the gold-bearing reefs throughout the district."

**TRYIT.**—Professor NICHOLAS says:—"The main reef runs through nearly the centre of the mine area, the length of which is along the strike of the reefs in both north and south direction. At about 340 feet from the south boundary is situated the main shaft which is sunk to a depth (vertical) of 25 feet. The reef underlies at an angle to the east of 32° from the horizontal. The reef averages in this shaft a width of (3) three feet of solid quartz."

The assays of four samples said to be taken from this mine gave the following results:—(1) Stone from bottom of shaft—3 ounces 15 dwts. to the ton, (2) Ironstone capping 8 inches wide on hanging wall side of lode. Showing gold freely—1 ounce 5 dwts. to the ton, (3) Lode formation on footwall side—17 ounces 12 dwts. to the ton, (4) Sample taken from across lode formation 5 feet wide, footwall side of solid stone, average—2 ounces 5 dwts. to the ton."

**TRYIT.**—Mr. MATTHEWS states:—"About 370 feet North of the South Boundary the No. 1 shaft has been sunk in the lode to the depth of 24 feet, slightly underlying East. The formation is composed of quartz, iron stained, with small bands of friable lode matter, the whole from samples tried containing good gold which has been exposed from the surface down to the present depth, and from the general appearance of the lode, good walls, and the enclosing rock (which is of a most favourable character), I believe, will continue. From various places in the lode I took three samples, and also one from the ore dump, all yielding very good returns indeed. The first bulk sample taken from the full width of lode in the bottom of shaft gave a return of 3 ozs. 19 dwts. 19 grs., per ton. One taken from the hard solid stones at the North end returned 2 ozs. 5 dwts. 19 grs., and one taken from the friable lode matter in bulk yielded 2 ovs. 5 dwts. A bulk sample taken from the ore dump (which contains about 30 tons) yielded the exceedingly good return of 2 ozs. 21 dwts. 19 grs. per ton, the four bulk samples giving thus an average of 2 ozs. 21 dwts. per ton."

**REISON'S REWARD AND EXPANSION.**—Mr. DAVID LINDSAY reports:—

"Mr. Reison has sunk on the underlay for thirty-five (35) ft., on a very rich quartz lode averaging about nine (9) in thickness. This lode is all dipping down, and at the time of my visit Mr. Reison had about two thousand pounds (£200) worth of specimens. The strike of the lode is North-west, with a flat dip to the East. Gold is showing on the face of the drives. Five chains from the underlay shaft a vertical shaft is being sunk upon a splendid reef formation of quartz and ironstone 13 feet thick, in which coarse lumps of gold occur frequently, besides much fine gold disseminated through the stone. I saw pieces of quartz broken out which were hanging together by bands and lumps of gold. The shaft is 20 feet deep, and a large quantity of stone could be raised quickly for battery treatment, when it would be found highly payable."

On the North side two shafts are being sunk to the depth of 170 feet. Gold is showing on the face of the drives. Five chains from the underlay shaft a vertical shaft is being sunk upon a splendid reef formation of quartz and ironstone 13 feet thick, in which coarse lumps of gold occur frequently, besides much fine gold disseminated through the stone. I saw pieces of quartz broken out which were hanging together by bands and lumps of gold. The shaft is 20 feet deep, and a large quantity of stone could be raised quickly for battery treatment, when it would be found highly payable."

Mr. CHARLES KAUFMAN, M.E., who was specially instructed to examine and report on the Paddington Group for the West Australian Exploring and Finance Corporation, Limited, in a brief cable report received by that Corporation, dated 5th September, 1895, states:—"PADDINGTON GROUP.—The situation of the property is all that can be desired. The Mines are three miles from Broad Arrow, within easy access of Coolgardie, a journey of thirty-two miles. The property is in the Hannan's district, and covers an area of 87 acres. Am carrying on negotiations, and on the point of purchasing an intermediate lease 556, which covers an area of 12 acres. [This is the 'Gaelic' since purchased.] In addition to the mineral zone running through the Mines are very extensive, of a highly favourable character for large deposits of ore bodies. The outcrop is strong in several places along the surface, the ground is partly covered by cement, and alluvial deposits are over the whole of the ground. The vein has been extensively worked, and has been proved by open trial shafts from 10 to 50 feet deep. Indications show that gold exists in abundance on this property. Coarse gold and fine gold. Bulk assays at mill average from all parts from 10 dwts. to 5 ounces upwards. Reison's Reward shaft has reached a depth of 170 feet. Expect to reach water level in very few feet. Have already ordered hoisting and pumping machinery. Shall commence crosscutting very soon. Plentiful supply of timber in the neighbourhood, and water is available at a moderate depth. I strongly recommend it. The property is a good one."

Having regard to the valuable Leases to be acquired, the small capital of the Company in proportion to the extent of the properties, and the large working capital provided, the Directors feel justified in impressing their em-

sidence that handsome dividends will accrue to the shareholders as soon as the property is equipped with an appropriate plant of crushing and milling machinery, which it is their intention to erect forthwith. It is proposed to erect the crushing plant in a favourable position on or near the Paddington group, and to cart the ore from the Reison's Reward (about  $\frac{1}{2}$  mile distant) to the mill.

The purchase price of the properties to be taken over has been fixed by the Vendors, the West Australian Exploring and Finance Corporation, Limited, who are the beneficial owners of the Property, at £125,000, payable in cash. £50,000 will be provided for working capital. The Vendors have agreed to pay all the expenses of forming and establishing the Company up to allotment, other than the legal expenses and registration fees.

A Contract has been entered into dated 24th September, 1895, and made between the West Australian Exploring and Finance Corporation, Limited, of the one part, and Chas. Lloyd, as Trustee for this Company, of the other part, providing for the purchase of the above-mentioned leases. The above-mentioned Contract, Reports, and the Memorandum and Articles of Association can be inspected at the office of the Company's Solicitors.

Application for Shares should be made on, or in accordance with the form enclosed in the Prospectus, and sent with the required deposit to the Bankers, of the Company. If the Shares allotted be less than the number applied for, the surplus of the amount paid on deposit will be appropriated towards the amount due on allotment, and where no allotment is made the deposit will be returned in full. Prospectuses and Application Forms may be obtained at the Office of the Company, and also of the Bankers and Brokers.

London, 26th September, 1895.

Written applications for Shares will be received if made in the following form:—

To the Directors of

**PADDINGTON CONSOLS (LIMITED).**

GENTLEMEN,—Having paid to your Bankers, Messrs. Prescott, Dimsdale & Cave, Tugwell & Co. (Limited), 50, Cornhill, London, E.C., to the account of Paddington Consols (Limited) the sum of £125,000, being a deposit of 10s. per Share on ..... Shares of £1 each in the above-named Company, I request you to allot me that number of Shares, and I agree to accept and pay for the same or any less number upon the terms of the Prospectus, dated the 25th day of September, 1895, subject to the Memorandum and Articles of Association of the Company.

Name (in full) ..... Address (in full) ..... Profession or occupation ..... Date ..... 1895.

## LATEST FROM THE MINES

### CABLEGRAMS AND TELEGRAMS.

**PPANTOO GOLD.**—During the month of August mill worked 16 days, crushed 600 tons quartz, which yielded 288 ounces of gold. Were stopped for want of water.

**BROKEN HILL PROPRIETARY.**—Advices to hand state that for the week ending the 26th inst. 6217 tons of ore were treated, yielding 554 tons of lead, containing 132,563 ounces silver; also 1578 tons treated by amalgamating and leaching plants, producing 17,632 ounces silver.

**BAYLEY'S REWARD NO. 1 SOUTH.**—The following cable, dated September 21, has been received by this company's London office from its head office at Melbourne:—"66 ounces, 44 tons, crushing 200 tons for public at £2 10s. five stamps."

**BLACKETT'S.**—The secretary advises that Mr. F. Bowes Scott has taken over the management of Blackett's from Mr. Leech, who has retired in consequence of ill-health. The following is extracted from a cable received from Mr. Scott:—"I have taken over Blackett's. I have a very good opinion of property. The stone is worth 2 ounces per ton. The lode looks exceedingly promising."

**BUFFELSDOORN ESTATE AND GOLD.**—The London agents announce receipt of the following cable:—"Production for August, 3361 ounces."

**BUSHMAN'S.**—The following has been received by cable dated the 23rd inst.:—"Splendid stone being raised, bulk assays 10 ounces, reef is a splendid one, and extends full length of property."

**BULUWAYO GOLD REEFS.**—A communication has been received from the manager from Johannesburg, en route for Buluwayo, that he is expected to be on the property in the course of a few days; 62 cases have been dispatched by the company, containing rock-drills, tools, and other necessities for development work.

**CARATAL.**—The superintendent writes that the terms on which he has arranged to crush ore for neighbouring mines are that the company is to receive  $\frac{1}{2}$  ounce of gold per ton of ore crushed by the mill.

**CENTRAL DE KAAP.**—The directors have received a cablegram confirming that of September 13, announcing that the last assays in the rich strike in No. 4 shaft gave 9 ounces 1 dwt. per ton. A further cablegram has come to hand, viz.:—"Have struck rich ore in the No. 3 drive." According to the manager's letter received this mail he was driving No. 3 adit to cut the rich ore recently found in No. 4, which is about 600 feet distant.

**CHAFFERS.**—Cablegram received from Mr. Bowes Scott, manager, dated September 25:—"New shaft adjoining Hannan's Star 50 feet deep, reef formation promises exceedingly well; estimate the net yield at 1½ ounces to the ton."

**COLENBRANDER'S (Matabeleland).**—The following cablegram has been received from the managing director, from Buluwayo:—"I have commenced five shafts Golden Quarries, two reefs of great value already struck."

**DAY DAWN BLOCK AND WYNNDHAM.**—The London office have received the following cablegram from the general manager at Chartres Towers, giving result of the crushing for the fortnight ending September 21:—"Tons crushed, 1000; yield of gold, 776 tons; approximate value, £2680; fortnight's expenses, £1715."

**EAGLEHAWK CONSOLIDATED.**—The directors cabled to know when the repairs to the boiler would be completed, and the cost; they have received a cablegram stating that repairs will be completed on the 8th proximo, at a cost of £500. They also asked for further particulars regarding the reef met with by the Union Mine on this company's boundary, and a reply has been received that the Union Mine looks splendid.

**ELKHORN.**—Bullion produced in the mill for the week ending September 21, 9500 ounces.

**HARQUAHALA.**—The following is the cabled estimated return for the month of August:—"Crushed during the month, 360 tons; estimated value of gold produced, \$4150; additional and final clean-up of mill, \$4450; treatment of tailings, 2870 tons, yielding \$6400; miscellaneous revenue, \$300; total, \$15,300. Estimated total expenses, \$10,003; estimated profit for month (at \$4.90 to £ sterling, £1082), \$5300. Mr. Raymond adds: "Cyanide plant is working to its full capacity, saving 80 per cent." The following cablegram has been received from Mr. Harvey (Kalgoorlie, Western Australia):—"Have driven through the (lode) 35 feet, veins of iron ore in the vein formation 30 dwts. per ton. Main shaft should be sunk on the vein 200 feet. South shaft has reached a depth of 100 feet. Commenced crosscutting; looks very favourable."

**GOLDEN FEATHER.**—The following cablegram has been received from the company's general manager at Oroville:—"Claim and all works in complete order. Commenced sluicing this afternoon."

**GIBRALTAR CONSOLIDATED.**—Mr. Eissler, the company's engineer, has cabled that:—"A trial crushing of 154 tons of ore has yielded 508 ounces of retorted gold, also 140 ounces from the concentrates. Total, 648 ounces, equal to 4 ounces 4 dwts. 6 grains of gold per ton." The result of this bulk crushing fully corroborates Mr. Eissler's previous investigations, and prove the remarkably rich character of the lode.

**KABOONGA.**—A cablegram has been received from the company's attorney, in Melbourne, stating that the report of an independent mining expert, appointed by the directors, has just been mailed home, and is of a favourable nature. The delay in sending this report is in consequence of negotiations for the acquisition of powers for working into an adjoining property.

**KINSELLA.**—Copy of cable received from mine manager, September 20:—"The whole of the machinery is now on the mine and stone-breaker just arrived. Monday shall commence at once to get the water out of the lower workings."

**JACKSON GOLD FIELDS.**—The following is an extract from a cablegram received by Jackson Gold Fields (Limited) from their general manager at the mines:—"Tramway: All preliminary work will be completed by September 30. Shall commence crushing ore October 1."

**LADY LOCH.**—The manager cables as follows:—"Lady Loch has at grass 900 tons of ore, which will average at least 5 ounces to the ton. Lady Forrest has 2000 tons at grass which will average at least 2 ounces to the ton. We are driven from the winze as the water is gaining upon us." Official Note.—It is estimated that the ore now at grass in both mines will give a net return of £25,000.

**MOONIE CREEK DEVELOPMENT.**—The following cablegram has been received from Mr. H. L. Stokes, local director, dated Buluwayo, September 21:—"Mining claims have been transferred to the company, and land transfer will be registered in the course of a few days. Work going on satisfactorily, and prospects reported good."

**MOSMAN.**—The following cablegram has just been received in London from Chartres Towers:—"Have crushed 125 tons of rainbow tribute stone for 82 ounces of gold. Have also crushed 81 tons of stone from North Australian shaft for 138 ounces, and 137 tons from Wyndham shaft for 143 ounces. The approximate value of the North Australian and Wyndham return is £930."

**MURCHISON (WESTERN AUSTRALIA) GOLD SYNDICATE.**—The manager cables as follows:—"We are fully engaged hauling accumulation of quartz from level's and laying truck road. The machinery works well."

**MOUNT MORGAN.**—The directors have received the following telegram from the head office, Rockhampton:—"We pay £25,000 on October 1, being dividend of 6d. per share (free of dividend tax) for the month of September."

**NELLY AND PRIMROSE.**—The following cablegram has been received from Mr. H. L. Stokes, local director, dated Bulawayo, 8 September 21:—"On Pioneer reef, including Pot Luck and Middy, 11 shafts are being sunk; most shafts are sunk on the vein 80 feet to 140 feet deep. In four shafts the reefs are exposed, but in two shafts the prospects are not encouraging, five shafts are still unfinished. Nelly reef, No. 1 shaft, 70 feet deep. The reef is 6 feet wide, carrying good free gold throughout, 3 feet 6 inches of which pan assays 2 ounces 10 dwts. per ton. The company has received from British South Africa Company a grant of about 12,000 acres vacant land adjoining Pioneer block of farms, a very valuable concession. An accurate survey of this and Nelly reef completed. About 1000 claims recently pegged on Nelly and Pioneer land. Gum-tree planting doing very well. I have to advise you that all mining claims have been transferred to the company, and land transfer will be registered in the course of a few days."

**NEW CHIMES.**—Last month's profit was £2574.

**NEW GUADALCAZAR.**—A cable has been received from the mines stating that the furnaces started burning ore on September 16, so that the returns of quicksilver produced may shortly be expected.

**NORTHERN TERRITORIES.**—The following cablegram has been received from this company's representative at Bulawayo:—"Stuart returned from 250 miles further north; report very favourable plateau 6000 feet high; have located copper workings, obtained copper bangles, reports that he saw gold ornaments worn by natives, and large timber forest."

**OURO PRETO.**—This company has received a cablegram, giving the returns for August as follows:—"Passagem Mine, 3900 tons produced 1419 ounces.—Raposo Mine, 400 tons produced 46 ounces."

**SIMMER AND JACK.**—An error crept into the cablegram which we published last week. We stated that 3458 ounces had been obtained from a crushing of 12,030 tons. It should have been 5158 ounces.

**SIMMER AND JACK.**—Last month's profit was £10,400.

**ST JOHN DEL REY.**—The following telegram has been received from Mr. Chalmers:—"Produce, 10 days, 2nd division, 8 September, 7500 oitavas, equal to 865 ounces troy, value £2906; yield per ton, 4.9 oitavas (5650 ounce troy)."

**SUTHERLAND REEF.**—The directors were advised by cable on Tuesday, from Johannesburg, of the engagement of Mr. Haddock as manager, on the recommendation of Mr. G. W. Starr, the consulting engineer to the Barnato companies. Mr. Haddock has had previous experience in the following mines:—May Deep, George and May, Durban Roodepoort and Langlaagte Royal. Mr. Procter with Mr. Haddock left Johannesburg for the mine on September 20.

**SELUKWA DEVELOPMENT.**—The following cablegram has been received from the Hon. Maurice R. Gifford, local director, dated Bulawayo, September 24:—"West drive. We have struck Main reef on the 100 foot level. The width of the vein is 2 feet, average assay value of ore 2 ounces 10 dwts. per ton. Previous strike reported in our cable of August 26 is not the reef. Mackinnon's shaft at 90 feet assays 20 dwts. per ton; also struck parallel reef, assaying 7 dwts. per ton. North drive assays 13 dwts. per ton at 300 feet."

**TRANSVAAL COAL TRUST.**—A cablegram received from Johannesburg announces the declaration of a dividend of 1s. per share to shareholders registered on September 30, this making with the interim dividend of 1s. per share in March last, a total distribution for the year of 2s. per share. The transfer-books will be closed from October 1 to 10 inclusive.

**UNITED MATABELE CLAIMS DEVELOPMENT.**—The following cablegram has been received from this company's representative at Bulawayo:—"Cumperdown very rich. Home Rule turning out very well. Selukwa looking splendid."

**VICTORIA ASSOCIATION.**—Crushing for fortnight:—"265 tons crushed, yielded 350 ounces gold."

**VICTORIA AND QUEEN GOLD.**—The directors have received the following cablegram from Charters Towers:—"Have cleaned up after crushing 76 tons for 105 ounces gold."

**WAIHI GOLD.**—Bullion return for 28 days ending September 21, £10,700 from 3000 tons.

## THE ROYAL CORNWALL POLYTECHNIC SOCIETY.

On Tuesday last the 63rd annual exhibition of the Royal Cornwall Polytechnic Society was opened in the Polytechnic Hall, Falmouth, and has remained in progress throughout the week. In character the exhibition is very comprehensive, many of the more important branches of West of England industry being represented there.

The opening ceremony was performed on Tuesday by the President (Mr. T. Bedford Bolitho, M.P.), who was supported by the Revs. R. Christopherson, M.A., Canon Rogers, M.A., W. Iggo, Gay Bridger, and J. S. Flynn, B.D., Colonel Tremayne, C.C., Captain Rogers, Commander Target, Captain G. H. B. Reed, R.N., Dr. E. Banks, W. Rogers, and Owen, the Mayor of Truro (Mr. S. Trevail), Messrs. J. D. Enys, R. N. Worth, J.P. (Plymouth), H. A. Norway (London), G. Millatt (Penzance), W. N. Carne, W. M. Grylls, C.C., R. Fox, R. V. Sherring, F.L.S., T. Hart, J. D. Berchet, J. B. Tilly, W. Brooks, F. J. Bowles, A. Whitmore, G. H. Rustice, H. Bolitho, E. D. Anderton, G. H. Fox, H. R. Hancock, W. Boase Smith, W. Rowe, W. H. Williams, J. Groom, J.P., W. F. Newman, J.P., W. W. J. Sharpe, H. L. Ower, F. W. Michel, G. Croker Fox, C. R. Broad, A. Wilson, N. J. West, Lady Warington Smyth, Miss A. M. Fox (Penjerrick), Messmates W. M. Grylls, J. J. Rogers, C. Phillips, Target, J. Bolitho, Acland, Powys, Rogers, H. Fox, E. Kitto, Lovett Cameron, Rodd, Philp, A. Wilson, Elch, Owen, R. Rogers, Bowles, W. Rogers, the Misses J. and S. Fox, Backhouse, Carrie Catto, Smith, Mitchell, Tilly, Cackett, Rodd, Jeffery, &c.

Mr. BOLITHO, M.P., in his inaugural address, said that in earlier days, when mining was more to the fore than unfortunately it was now, the Polytechnic Society did yeoman service in offering rewards for appliances, and was even a sort of pioneer in giving large sums of money 30 or 40 years ago for the purpose of technical education. In more recent years, no doubt, the development of South Africa had contributed largely to divert men's attention from the mines in Cornwall. He was sorry to say he could not speak in eloquent terms of the future of Cornish mining. Much of it remained under a cloud, and one could not say when that cloud was likely to be removed. But if their mines were to continue to exist, it would be necessary to utilise machinery of a new type, and do away with the old machinery, which had to a large extent become obsolete. And if some of their south African friends who had made marvellous fortunes in that wonderful country in a perfectly legitimate manner would bestow upon them some of their thoughts and energy, and not a little of their money, Cornwall would derive very considerable benefit. (Hear, hear.)

**CORNISH PUMPING ENGINES.**—During the exhibition a very important paper was read by Mr. F. W. Michel, C.E., of Redruth, on "The Unfinished Duty of Cornish Pumping Engines, and its Remedies." Mr. R. N. Worth,

J.P., of Plymouth, occupied the chair, and briefly introduced the lecturer to the audience.

The LECTURER said it had been urged, with a considerable amount of force, that the economic working of the Cornish pumping engine had for many years past been considerably diminished. It must be admitted that such was the case, although not so much on the average of engines reported on 40 years ago and the average of engines now, but rather that individual engines were then reported to be doing higher duty than any steam-engine at the present moment. About 1843 the highest recorded reliable duty was attained by Taylor's engine at the United Mines in Gwennap, and in Leau's engine report it was stated that nearly 103 millions of pounds' weight were lifted one foot high by the consumption of a bushel, or 91bs., of coal. The present consumption was by 112bs. of coal as a standard, instead of 91bs. the bushel; so that the actual duty of this engine, measured by the present standard, would be 122 millions of pounds lifted one foot high, or its equivalent. If one looked at the condition under which Taylor's engine worked he would find in September of that year the load per square inch on the piston was but 123lb. The rate of working was five strokes per minute, and the duty was 122 millions. The pressure of the steam was, he thought, 50 lbs. on the square inch in the boilers, and he had been informed that the steam valve was closed when less than one-fifth of the stroke was accomplished. In December, 1845, the load had increased to 143lb. on the square inch on the piston, and the duty had dropped to 108 millions. At this time there were six boilers supplying the engine with steam, and the consumption of coals was but 11 cwt. in each boiler in 24 hours. In 1851 the load had increased to 153lb. per square inch on the piston. They had increased the consumption of coals to 17 cwt. per boiler in 24 hours. The pressure of the steam in the boilers had been reduced to 42lb. on the square inch, the rate of expansion had been diminished, and the duty had dropped from 122 millions to 74½ millions. Now, if they contrasted this engine when doing its best duty with the conditions under which an engine of about the same size, similarly designed, and now at work, they would see how a much lower duty (say) of 50 or 60 millions only was done. The load was 21 lbs. on the square inch on the piston. The engine took steam fully half stroke and the consumption of coals was about 32 cwt. in each boiler in 24 hours. In this case the dampers were worked far too high. The heat went up the chimney. The terminal pressure on the piston was largely increased, and the duty of the engine was down accordingly. The mines of Cornwall had been much deepened of late years, and the load of the engines had been considerably increased. Expansive working of the steam to any extent was impossible, and in many cases not even a boiler had been added. The conditions of economical work was represented by this high-duty engine were:—A good pressure in the boilers, a high rate of expansion, slow combustion in the fire, careful clothing of both engines and boilers, and maintaining the engine in a good state of repair. The present over-loaded engines could never work cheaply, and it was not too much to say that a great many of the pumping engines were burning fuel one-third too much or a'. He was aware that many of the shafts were bad, and some were a disgrace to the mining of the country; but still there were many good shafts, and where the pitwork was properly made, and fixed under the supervision of competent pitmen, very good results might be looked for. But in some cases the pitman was by no means as good a man as he should be. The compound engine had been suggested as more economical than the single-acting engine; but it must be recollect that Cornwall was the home of the combined, or, as it was now called, the compound engine, invented by Jonathan Hornblower, improved upon by Arthur Woolf, and rearranged by Samuel Moyle and James Sims. But little remained to be done, the only chance being in the use of higher pressure steam in the boilers. But even against this the Cornish pumping engine was a formidable antagonist to deal with, and up to the present time had, in fact, held its own against all comers. Wherever fuel was dear, as in the African gold mines, the time would most likely come when the Cornish pumping engine would supersede the rotary engine and other makeshifts that now drained their mines. Whatever had been done by Cornish engines in the past could be done again, and even better results might be expected. But the necessary capital had first to be found to make new engines and pitwork of the best type, and to work them under the most favourable conditions. (Applause).

A vote of thanks to the lecturer terminated the proceedings.

## COMPANY FINANCE.

Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

### Van Ryn Gold Mines Estate.

The following circular, signed by the secretary, has been issued to the shareholders:—"As the monthly results cabled from Johannesburg for July and August may be misleading to shareholders as regards the value and prospects of the company's property, the directors desire them to bear in mind that a new battery of 80 heavy stamps and a new cyanide plant, with a capacity of 8000 tons per month, are now in course of erection, which will replace the old battery of 50 light stamps, and the cyanide plant hitherto used. This new mill and cyanide works are estimated to treat 8000 tons per month as against the present output of about 4000 tons. The new plant is expected to be in working order about January next, and as the present work of the mine is being conducted entirely with a view to the speedy erection of the new mill and plant, varying results must be expected until the new machinery is in working order. The directors then anticipate a considerable saving in the cost of production, and that the monthly profits should reach £8000 per month. The recent assays have been of a very satisfactory nature, and show results of from 4 dwts. 13 grains to 3 ounces 15 dwts. 6 grains per ton over the stope width. A table of average assays is enclosed, and, in future, a similar one will accompany the monthly circular. The reports in the company's possession estimate that there are about 6,000,000 tons of ore in the mine, which, with an 80 stamp mill constantly working, means a life of about 50 years.—By order of the board, Stuart James Hogg, secretary."

### The Ethel-Hope Gold Mines.

The following circular has been issued to the shareholders:—"I am directed by my board to advise you that the reconstruction scheme has been very successfully accomplished, and the final allotment of shares has been completed to-day. The total number of shares applied for by shareholders of the old company amounted to 209,675, and the remaining 11,585 shares have been disposed of at a small premium. This represents a total allotment of 221,260 shares—the full number offered for subscription—and after deducting the further cash payment of £1750 for purchase of the properties, a net working capital will be available, inclusive of machinery, of about £17,500. I have also the pleasure to inform you that the directors have appointed Messrs. F. Bowes Scott and Co. managers of the company's affairs in West Australia. You will recollect it was upon the report of Mr. Bowes Scott that the board decided to acquire the options on the properties. The latest news from the mines, received in a letter from Mr. F. Bowes Scott, dated August 5, is that it had been reported that 'good gold has been struck on the Good Hope lease.' Mr. Scott also states in a letter just to hand, dated July 30, that 'the purchase price for the Ethel and Good Hope claims is certainly a very good arrangement for the company.' Instructions have been given for the immediate

removal of our machinery from Perth to the 21 Mile, and we hope to hear shortly that it has arrived. Development will be pushed on as rapidly as possible, so that the properties may be thoroughly proved, and necessary pumping machinery will be sent on to the mine as speedily as possible."

The Barnato Consolidated Company has successfully floated in Johannesburg its first subsidiary company. The name of the new concern is the CHIMES MINES (LIMITED), and the capital is £375,000 in £1 shares. The property to be acquired consists of 508 claims adjoining New Chimes and Klinsfontein. The purchase price paid for these to the Barnato Consolidated Company is £300,000 in fully-paid shares. For the present the vendor company will retain these, but they may be divided as bonus among shareholders later on. The parent company has subscribed for 25,000 shares at £2, thus giving its offspring a working capital of £50,000 to start with. For providing this sum it obtains the option to subscribe during the next 12 months for the remaining 50,000 shares at £2 10s. per share. Should that option be exercised, as will in all probability be the case, it will add £125,000 to the working capital of the Chimes Mines (Limited). This is said to be the first of 30 sub-divisional companies which Mr. Barnato has in his mind's eye for the Consolidated Company.

A dividend at the rate of 25 per cent., or 5s. per share (free of income tax) will be paid to every shareholder on the register of the GOLDEN LINK GOLD MINING COMPANY on October 17 next, and, for the purpose of issuing the dividend warrants, the transfer-books will be closed from October 18 to 27 next, both days inclusive.

We are informed by the directors of the BRITISH BROKEN HILL PROPRIETARY COMPANY (LIMITED) that the colonial secretary advises them that there is a marked improvement in the mines, and that recent exploratory works in the sulphide ores have already opened up some 150,000 tons that will be highly remunerative if concentrated. So thoroughly satisfied are the colonial directors (after carefully watching other companies' operations for some time) that they contemplate the erection on the mine by Captain Hanekom of a complete jiggling plant for treatment of both carbonate and sulphide ore. A complete rock-drilling plant has also been purchased.

An extraordinary general meeting of the LILLOOET, FRASER RIVER, AND CARIBOO GOLD FIELDS (LIMITED) will be held next Thursday, for the purpose of confirming the resolution adopted at the meeting held last week. Holders of share warrants to bearer who desire to attend the above meeting in order to enable them to vote, must deposit the warrants in respect of the shares they hold at the office of the company, on or before Tuesday, October 1, 1895, at two o'clock p.m., so that voting certificates in respect of their shares may be issued to them.

The VICTORIA GOLD MINING ASSOCIATION (Charters Towers) announces a dividend of 3d. per share, payable on and after October 7 next.

Holders of share warrants to bearer in the GELDENHUIS ESTATE are informed that they will receive payment of dividend No. 8, 30 per cent. (i.e., 6s. per share), on presentation of Coupon No. 8 at the London offices, 120, Bishopsgate-street Within, E.C., or at the Credit Lyonnais, Paris. Coupons must be left four clear days for examination at either of the offices mentioned above, and should be lodged between the hours of 11 and 2, Saturdays excepted. Listing forms may be had on application. The cheques in payment of above-mentioned dividend have been posted to all shareholders registered on the company's books on July 10.

The directors of the AUSTRALIAN SYNDICATE (LIMITED), of 42, Gresham House, yesterday declared a dividend of £5 per share free of income tax, payable on October 21.

The CONSUELO GOLD MINES (LIMITED) has completed the purchase of its property, and the same has been transferred into the name of the company.

The London agents of the NEW PRIMROSE GOLD MINING COMPANY (LIMITED) announce that warrants for dividend No. 12 of 25 per cent. for the half-year ending June 30 have been posted.

The directors of the NEW HERIOT GOLD MINING COMPANY have declared a dividend of 10 per cent. payable to all shareholders registered on September 27, 1895. The warrants for this dividend may be expected to arrive in Europe from the head office in South Africa, at or about the end of November next.

The London agents of the GLENCAIRN MAIN REEF announce that warrants for dividend No. 3 of 15 per cent. for the half-year ending June 30 have been posted.

The BRITISH GUIANA PROSPECTING AND GENERAL DEVELOPING COMPANY (LIMITED) has declared an interim dividend of 25 per cent. on its paid-up capital.

The final batch of letters of allotment in the GREAT BUNINYONG ESTATE GOLD MINING COMPANY (LIMITED) were issued Friday, 20th inst.

**THE AFRICAN METALS COMPANY (LIMITED).**—The first general or statutory meeting of shareholders in the African Metal Company (Limited) was held yesterday, at Winchester House—Mr. F. W. Lara, who presided, said that the meeting being a statutory meeting there was no balance-sheet or official report to present. He was glad to state that the capital of the company was over-applied for, and, consequently, was all allotted. The time which had elapsed since the registration of the company—viz., two months—was too short to enable anything definite to be said about the prospects of the company, beyond that everything up to the present had gone on satisfactorily, and good business was opening up. They had arranged to take a co-operative interest in certain ventures which were coming on, if it were ultimately thought advisable to do so, and they had also appointed agents at Johannesburg, while two of the managing directors were going out to the colony, one on the following day, and the other in a fortnight's time. In conclusion, he could only say that the business of the company was extending, so much so that it had become necessary to make another call upon the capital, notice of which would, in due time, be given to the shareholders.—The proceedings then terminated.

## COMPANIES AND LEGAL ANNOUNCEMENTS.

\* Advertisements are inserted in this column at the rate of 6d. per line with a minimum charge of 7s. 6d.

**THE BOARD OF DIRECTORS** of "EL CALLAO" GOLD MINING COMPANY hereby give notice that an EXTRAORDINARY GENERAL MEETING of Shareholders will be held at the Company's Office, in Cal'd Bolivar, on the 30th November next, in accordance with Article 204 of the Commercial Code, for the purpose of taking into consideration the Reduction of the Capital, and adopting a Resolution on the subject.

They will likewise propose opening negotiations with other Mining Companies in the same region for the exploitation of their properties under "El Callao's" Administration.

Shareholders are reminded that for voting purposes Shares will be deposited with Messrs. Baring Brothers and Co. (Limited), in London, and with Messrs. E. Hoskier and Co., in Paris, a month before the meeting takes place in Cal'd Bolivar.

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THE BUSINESS MANAGER) can now be received for the forthcoming issue of THE MINING JOURNAL, RAILWAY AND COMMERCIAL GAZETTE, on FRIDAY, at 15, FINCH LANE, E.C., up till 6 p.m., and at 3, DORSET BUILDINGS, SALISBURY SQUARE, E.C. until 9 p.m.

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LONDON: SEPTEMBER 28, 1895.

## SIMMER AND JACK.

WHEN one bears in mind the remarkable progress which individual South African companies are making month by month and year by year; when one bears in mind, too, the consistent improvement in the Rand output every month; and when one also considers the evidence regularly furnished us of the improving value and permanence of the Deep Levels, it is, to say the least, an error of judgment to assert that we may expect, with some certainty, a renewal of the depression which but very recently overhung the mining industry. That depression, we are quite aware, was due principally to the frauds which are still being perpetrated, and, to some degree, to inflated values. Yet there are many who fear that the high prices to which shares have risen recently, especially in the South African market, will some day bring about such a reaction as to be followed by another long period of depression; but no one when he bears in mind the potentialities of the whole of South Africa can sanely for one moment predict such an outcome from present day signs. Last week we drew attention in one of our

leading articles to the present position of the New Primrose Company, and gave some figures upon which we argued a brilliant future might be based. Now it is our duty to draw attention to the Simmer and Jack, a company which, although not at present yielding so much gold as the New Primrose, is one destined, in the opinion of every critic, not only to greatly surpass the former, but to become one of the greatest gold producers in the world. The improvement which has taken place during the past year has been wonderful, and this is due, in a great measure, to the foresight of those in whose hands the management is placed. It was a splendid stroke of business when the directors purchased from the Consolidated Gold Fields Company of South Africa a further 534 Deep Level claims, and already evidence has been furnished justifying the wisdom of this action. At the time of the meeting held last year the issued capital was only £83,000, the property consisting of 334 claims, and the price of the shares being but £8. Now the capital is £250,000, the extent of the property is 868 claims, and the price of the shares between £23 and £24. The statement delivered by Mr. RUDU at the annual meeting of the Consolidated Gold Fields of South Africa, in November last, has been remarkably supported by the results of the working during the last 12 months. It will be remembered that he then said:—"During the past year a great feature has been the acquisition of Deep Levels in the Simmer and Jack Mines, and the amalgamation with that company. The property might fairly be said to be unique in mining. It is the largest in the world, and I believe it will be the largest producer in the world. Mr. CLEMENT has told me that, barring unforeseen accidents, he will be able in two years to mill 40,000 tons per month, which will mean a production of about £100,000 per month." This seemed a bold prediction to make, and no wonder it was received with almost unanimous incredulity. Of course, Mr. CLEMENT did not mean that the remarkable improvement was to take place in the near future; but no one after impartially considering the evidence brought before them at the annual meeting, held in South Africa last month, would go so far as to assert that such an output is impossible. The possibilities of this company can scarcely be computed. The future, to say the least, looks brilliantly, and it is quite possible that the estimates and predictions of those who are in the best position to judge will be more than fulfilled. As we have already stated, nothing great or magnificent must be expected for some time—not, in fact, until the 280 stamps are erected. It is estimated that the building of this battery will be completed at the end of 1896. Mr. HAMMOND, one of the most eminent mining engineers in the world, and one whose opinion must be listened to with great respect, computes that the company's claims contain sufficient ore to supply the new mill for 30 years, and estimates that the capital to be required up to the time it commences operations will be £400,000. When all the claims have been developed, and this great battery is in full working order, the increase in the returns, and the corresponding increase in the profits, will be immense; and it is more in anticipation of what is in store that the shares have been in such demand of late, and have reached their present high price. Of course, when one comes to bear in mind that the present outputs, profits, and dividends are comparatively small, the price is ridiculously inflated; but when one bears in mind the future that is awaiting the company, and that very little time and patience are required until the great improvement takes place, the present price of the shares is quite justified.

Dealing more particularly with the statements delivered at the meeting, and the report presented by the director, the profit on mining and milling for the 13 months amounted to £78,470, out of which two dividends were paid, amounting to £47,160, leaving a balance of £31,310 on the year's work. There has been a slight increase in the working expenses, which have risen to 26s. 7d.; but this is only a temporary step back in order, so to speak, to give impetus for greater progress in the future. The explanation of the increase is satisfactory. It has been due to certain exceptional expenditures on important improvements underground, in order to bring about more economical methods of working, and also to the fact that a greater proportion of hard pyritic ore has been treated. The manager expects, however, that during the coming year expenses will be brought down to their previous level. The total ore reserves at the end of June amounted to 289,164 tons, in addition to which there is a very considerable quantity of low grade rock, which can be utilised when the 280 stamps commence crushing. During the year the old 100 stamp mill crushed 132,007 tons, which yielded 55,915½ ounces by amalgamation, and 6035 ounces from concentrates, an average of 9½ dwt. per ton. The Rand Central Ore Reduction Company treated 184,200 tons of accumulated and current tailings, which yielded 30,106·91 ounces, or 3·26 dwts. per ton. This gives a total extraction from the ore of 12·76 dwts., and from the assayer's report it appears that the average value of the ore is 14 dwts. 3 grains, and of the tailings 4·8 dwts. The contract for the sale of the tailings to the Rand Central Ore Reduction Company having expired, the company is treating its own tailings, and, therefore, an increased revenue will be derived from this source. Financially, the position of the company is very strong. At the end of the fiscal year two 10 per cent. dividends, as already mentioned, have been paid from cash in hand, whilst the sum of £48,748 14s. 3d. was written off for depreciation. During the past year the monthly profits have increased from £4000 and £5000 monthly to between £7000 and £10,000. The additional expenditure of £400,000, which Mr. HAMMOND estimates will be required up to the time the new mill commences operations, has been amply provided for, seeing that under the Trust Deed the board have power to create up to 50,000 new shares, which, at the present price of the stock, would realise over £1,000,000 sterling. Details were given at the meeting respecting the much talked-of subsidiary companies, in which the parent company will hold the con-

trolling interest. The Simmer and Jack West is situated on the immediate dip of the Geldenhuis Deep, and consists of 249 claims, of which the Simmer and Jack has contributed 144 claims, and receives an interest in the vendors' and working capital to the extent of 70 per cent. The capital of the company is £400,000, of which 129,223 shares are allotted to the vendors at par, to provide working capital, and the remaining 100,000 shares, over which no option exists, held in reserve. The Simmer and Jack receives 90,897 vendors' shares, and a right to subscribe for a further 120,104 shares at par in this company. The reef is expected to be struck on this ground at a depth of between 2000 and 3000 feet. The Simmer and Jack East acquires in all 459 claims, of which the Simmer and Jack contributes 135 claims, and receives in return 39·97 per cent. of the vendors' and working shares. The total capital is £700,000; 364,000 shares are allotted in payment for the ground, 186,000 shares issued to the vendors at par to provide working capital, and the remaining 150,000 shares held in reserve free of any options.

Bearing in mind the above figures and their full significance, and that the whole extent of the property is practically proved to be reef bearing, and also the improvement which has taken place in so short a space of time, one can well understand that the true value of the property can scarcely yet be fully recognised. Not only does the parent company possess a compact block of 635 unworked reef claims, a valuable water right of 63·8 claims, and 142 other claims to the south, but it holds a very large interest in companies whose prospects are almost as brilliant as its own, and whose shares at the present moment stand at a high figure. Thus one could not arrive at any other conclusion than that the prospects are truly magnificent. Its present position also goes far to convince sceptics as to the permanence and value of the principal mines of South Africa, and the incomparable potentialities of the Witwatersrand. Those who are fortunate enough to possess a large interest in the company are to be envied and to be congratulated.

### GOLD MINING TRUSTS.

**A**MONGST the many remarkable features of the gold mining "boom" of 1895, and one of the most significant and important has been the large measure of favour accorded to concerns formed not so much for the actual practice of mining as for the buying and selling of mining shares. The public demand for such shares marks the revolution of feeling from the judgment of mining share buying as the wildest form of "speculation" to its acceptance as a recognised form of "investment." Investors, and especially Continental investors, have apparently come to the conclusion that the dealing in mining properties is a solid and lucrative trade, and that they can pay huge premiums to engage in it with the reasonable prospect of a handsome profit. Against the general soundness of this view we have nothing to say. There is no doubt that in the process of transferring mineral claims from the prospector to the public, excellent, nay, brilliant business is to be done for the intermediary, and it is unquestionably better for the public that this business should be carried on by concerns established to make it their permanent source of income rather than by greedy promoters and vendors intent upon making their "pile" out of a single transaction of the sort. "Water runs to water," and the great associations, with leading financial magnates at their heads, can hardly help getting hold of the richest opportunities for making money in this way. The only objection to be urged against the present position of mining trusts in the Money Market—and that only so long as they are considered simply from the investing point of view—is the fear that the share prices are too much inflated to allow of the return of reasonable profits upon the capital placed in them. The public has been blamed for taking everything for granted upon the shallow security of a name. It has been urged that the appearance of such cognomina as NORTH, BEIT, BARNATO, ROBINSON, or RHODES in connection with an undertaking is no proof of its soundness and integrity. The public, however, as is usual, has shown in this matter more genuine common sense than is displayed by its critics. It knows very well that reputation is as much the "immediate jewel" of an established magnate of the financial world as it is to meaner mortals. It would not pay a millionaire to make a paltry addition to his wealth by associating himself with a mean fraud. Putting honesty out of the question, the game is not worth the candle. And raking up the methods by which such men have become millionaires in no wise impairs the confidence which may be honestly felt in the obligations imposed upon them by their present position. We may, therefore, feel sure that the big mining banks which have lately been started under theegis of ROBINSON or BARNATO are intended to earn profits for their shareholders.

It is, however, perfectly reasonable to doubt whether the profits of these concerns, *qua* investments, can permanently be at the rate which represents a fair return upon capital at the present inflated prices. It must be remembered that the profits which it is easy to show upon present holdings are only possible because the holdings also share in the present inflation. And it is absolutely certain that the present prices of gold mines—South African and Westralian—do not represent the prices upon which respectable dividends can be paid for many years to come. A 50 per cent. dividend does not mean much return upon shares which have been bought at 150 per cent. premium. What will seem even more important to many people is the fact that the men upon whose ability and integrity these inflations are founded have themselves protested against them—from the investment point of view. And the curious thing is that the recent extraordinary movement in share values has been the result more of the confidence and enthusiasm of investors than of the speculators themselves. The lesson for investors with respect to the mining market is, therefore, simple.

They should refrain from rushing in to buy shares to hold at prices which are based upon the inflation now ruling. No sensible person can believe that these prices are anything like a permanent standard of value. For speculators, of course, this caution does not apply. They seek different ends, and act upon other considerations. The investor should remember that he stands on quite a different plane from the speculator who risks his all for the sake of immediate gain, and in the present state of the market it is evident that this juggling with shares must sooner or later result in a crisis—a feeble one it may be but still a crisis which will have the effect for some time of depressing all classes of shares. It depends upon the investor whether the backsliding of the market will be a serious one or not. If small holders take up dividend-paying shares as a means of securing a profitable income a solid foundation will be given to the market upon which the speculative element may continue to operate with relative security. But it becomes exceedingly difficult for the investor to act with caution. He is naturally drawn towards the gilt-edged shares which are priced at too high a figure to bring in a remunerative return, and more often than not he is lured on to buying scrip for a rise. For this reason the number of investors, pure and simple, is becoming smaller and smaller, to the danger, it may be, of the mining market. In the present emergency it requires some very strong mines to inspire confidence and prevent the market from collapsing at the first sign of danger, and to this extent it is of the greatest importance that the market should be regulated by the influential financial magnates at the head of the "trust" companies. It is in their power to preserve the mining market in its present active state almost indefinitely, but this will require an exceptional tact and sagacity, in which, it is to be hoped, the ROBINSONS and BARNATOS will not be wanting.

Now that the "trust" companies are taking up a prominent position on the Mining Market there is reason for believing that the public interest in shares will extend over a wider radius than formerly. These concerns have the experience to predict success with a fair amount of certainty, and every enterprise likely to yield remunerative returns should come in for more attention. There are many mines with excellent prospects which have been comparatively neglected in the "boom," and which will pay far better as investments than those special favourites of the market which all Europe has lately been crowding to buy. Some of these have been drawn in the vortex of speculation and then dropped again, and if investors take advantage of these when the moment is favourable they will secure more profit by holding them than by realising on an upward market. Certainly, the chances of investors getting an interest in the dividend-paying mines of the Transvaal upon such terms as will secure them a good income, are small indeed; but there is no reason why they should not participate largely in the gold mining industry of Westralia and other auriferous countries. So far, the Westralian mines have not been particularly affected by the speculative fever, but the time does not seem to be far distant when they, too, will come within the range of the great financial interest. After all, it is much better that investors should take an active part in the gold mining industry than that they should make their shares serve as counters in the great gambling craze. The money represented by the current value of shares is enormously in excess of what is needed for the proper development of the mines, and judged from this standpoint, the industry may be said to be vastly over-capitalised. Of course, the margin between the capital actually sunk in the industry and the aggregate value of the scrip represents so much profit to the speculators, and can do no good to the industry itself beyond placing it in a position to command whatever capital it pleases. But as the returns upon the working capital have to be spread over the whole of the vast sum represented by the value of the shares, it is evident that the gold mining industry has lost much of its solid character as an investment. Under ordinary circumstances this state of things would inevitably be followed at some time or another by a climax, and it remains to be seen whether the "trust" companies, by regulating speculation, will prevent the inflation of the mining market from taking a dangerous turn. It is quite within the power of these concerns to keep speculation within reasonable bounds, but whether they will be sufficiently far-seeing to do so remains to be proved. In any event, it is to be hoped that the Westralian mining industry will escape the gambling fever which is such a precarious, if brilliant, characteristic of the Transvaal.

### MISLEADING STATEMENTS IN MINING PROSPECTUSES.

**I**N the hurry-scurry and excitement of the day, when nearly every other man you meet has a gold mine for sale, or wants to buy one, it is not to be wondered at if a good many loose and misleading statements are flying about in a most confusing manner. Like wild chickens, they come home to roost some times. We know that there are a good many who take much pains to dodge the truth and evade the law; but some, we fear, have diverged so far from the truth that it is questionable whether the law will not have them in its grip yet. When positive statements are made that ledgers can be traced cropping out from surface right through the length of a lease, claim after claim, for miles in length, going ounces to the ton, they are nuts very hard to crack. Hard facts and the results of experience are proving, in too many instances, that many of the statements made in reports and prospectuses are not correct. We have had the evidence of managers of mines who have been sent out to take charge of them, that the representations made in the prospectuses and experts' reports were wide of the truth, and the wild statements were thus denounced, yet we have not heard what action has been taken against the promoters or the writers of the glaring mis-statements.

Experts may err in judgment and differ in opinion as to the value of a mine, or the probable value or quantity of matrix to be worked, and the expenses necessary for development, especially when the future is a hidden mystery. Again, there may be surrounding circumstances in association with the venture, such as a dearth of timber and water, or too much of the latter element, which necessitates machinery of a more expensive kind than represented in the prospectus. If a mistake is made in starting works with inefficient machinery, then occur the serious loss of time and money in rectifying the blunder first made. In some districts where alluvial leads of gold are overlaid by extensive layers of basaltic rocks and fine drifts containing volumes of water to pump constantly, it would be simply a waste of time to erect a pumping plant suitable for a 15 inch column of pumps if it was tolerably well known to experts in the district that it would need two columns of pumps of that or greater diameter. When a great mining scheme has to be taken in hand the difficulties should be faced and met from the outset, not played with, merely to make things pleasanter for the shareholders of the company at starting. If it will take (say) £20,000 to carry out a certain work, it is only wasting time, money and opportunity to try and do the work with £5000 or £10,000; the attempt will be futile and disastrous.

Then, again, grave misrepresentations are made at times by representing a mine to be in a non-existent district, or claiming credit on account of borrowed plumes from some well-known rich mines in another district that has no connection with it. This system of sailing under false colours is done to deceive the unwary, who do not know the difference between the Gold Coast and the Rand, or West Australia and New South Wales, or Queensland and Victoria. Not only in the different gold countries, but in the districts into which the countries are subdivided, are there material differences of stratifications and features that cannot be understood, except by those who have studied the subject either practically by experience, or scientifically by reports and plans of others. It is, therefore, essential that directors, before allowing their names to appear in a prospectus, should beware of lending their names to misrepresentations for misleading others. They should take every precaution to find out the truth about the true position, prospects, and difficulties to be encountered with any mining undertaking. Let each country, gold field, or district stand on its own merits; they all have some special feature of recommendation or otherwise; in fact, let every tub stand on its own bottom. In the multiplicity of novices in mining who are rushing the markets with all kinds of schemes of which they know little or nothing it is not to be wondered at if confusion exists in the minds of investors as to the geography of countries and localities, and it is, therefore, the more essential that directors should make investigations for themselves, not only as to the credentials of those introducing gold mining properties, but their knowledge of mining, and the position and prospects of the properties introduced.

### THE MINERAL STATISTICS OF GREAT BRITAIN.

**T**HE annual Blue-book, containing the mineral statistics for Great Britain for 1894, has at last been published, and the papers relating to mining for the past year are thus, at length, complete. Our readers will remember that this year sees the inauguration of the new system that was recommended by the Departmental Committee on Mining and Mineral Statistics, who, in the early months of this year, issued a report recommending a series of modifications in the plan hitherto pursued. Now that the full result of these alterations is before us, we can see how far they are likely to prove of value. The summaries of mineral statistics appeared, it will be remembered, as early as the middle of March, whilst the completed statistics have only just been issued. We presume that this excessive delay is merely due to the inevitable friction when a new machine is started, and that in future years the statistics will appear within a month or two of the summaries. When all is in working order, longer delay than this would really seem inexcusable. This year it may in part be due to the necessity for the compilation of that very laborious volume issued a few weeks ago, the list of the mines and mine-owners of Great Britain. This will in future years only need keeping up to date and revising, a far lighter task than that of its original compilation. Be it as it may, however, it is quite certain—and we insist on this point in the interests of the great industry which we represent—that mineral statistics, issued nine months after the conclusion of the year to which they refer, are pretty nearly useless.

There is, in fact, but little in these statistics that need engage our attention for long. Most people, no doubt, will turn first to the gold output, relatively unimportant though it is, because gold mining is the fashionable craze of the hour. We find that our only gold field produced altogether 4235 ounces, valued at £14,811, the quantity of quartz crushed having been 6003 tons. This quartz, therefore, yielded at the rate of 12 dwts. 20 grains of gold to the ton. These figures compare very well with those for 1893, when 4489 tons of quartz were crushed and yielded 2309 ounces of gold, being at the rate of 10 dwts. 7 grains per ton. It will be seen that the output of gold is nearly double that of the previous year, and is, in fact, the best of any year since 1873, always excepting the record year of 1888, in which the revival of Welsh gold mining took place. At any rate the yields here quoted may afford food for reflection to some of those speculators who are fond of buying up shares in the gold mines of Western Australia, or other remote and inaccessible quarters of the globe.

Our great mineral staple—coal—was so fully dealt with in the summary that we cannot glean any additional information of general interest from the present publication, though much detail of value to coal miners is to be found therein. As to the

metalliferous minerals it may be sufficient to state that the total value of the metals obtainable by smelting from the British ores raised in 1894 is given as £11,086,945, an increase over the corresponding total for 1893 of £437,335; practically the whole of this increase is due to an improvement in the quantity of iron, this item showing a gain of over £665,000, whilst nearly all the other metals show losses, tin in particular having diminished by £180,000.

A word may be added respecting the appendix, which gives the production of minerals in the British colonies. Surely a Blue-book, published in September, 1895, ought to be able to present its readers with something more modern than the statistics of the colonies for 1893, seeing that the reports of the various colonial departments of mines for 1894 have long been in the hands of non-officials in this country. Is the Colonial Office so far from the Home Office that documents take a year in getting from one to the other?

## NOTES AND COMMENTS.

THE shareholders in the Langlaagte Estate and Gold Mining Company (Limited) are to be congratulated. A circular has this week been issued to them which has filled them with great joy, and it is no wonder that, as a result of the information therein contained, the shares have been in great demand during the week. Of course it did not need this information to acquaint the public with the strong position of the company and its magnificent future. That is a matter of general knowledge. The company has in hand at the present time about £200,000 in cash. This amount is exclusive of dividend money that has been accruing since June 30 last, and which will be issued for the payment of dividends at the end of the year. Besides this amount in cash, the Langlaagte Estate and Gold Mining Company (Limited) is the holder of 235,000 shares in the Langlaagte Exploration and Building Company (Limited). This amount of shares represents nearly one-half of the entire capital of the latter-mentioned company. The company has received a cash offer for these shares of £500,000, but this has been declined by the directors, as the shares of the Langlaagte Exploration and Building Company (Limited) will, they think, within a very short time, obtain a very high value. Since the formation of the latter company applications have been made for the purchase of stands at a very high figure. The Langlaagte Exploration and Building Company (Limited) being the largest shareholder in the new company, the directors at Johannesburg are now arranging to prospect the farm Middelfontein, and to erect houses on some of the stands belonging to the new company. A number of the stands will be sold, and, on some, houses will be erected. There is a great demand for houses at present, and those erected by the Langlaagte Exploration and Building Company (Limited) will be sold and let to great advantage. Under these circumstances the directors do not feel justified at present in disposing of the large interest which the Langlaagte Estate and Gold Mining Company (Limited) holds in the Langlaagte Exploration and Building Company (Limited), but would rather distribute the 235,000 shares amongst their shareholders if, in the opinion of the shareholders, it would be advisable so to do. In the event of a distribution of the above-mentioned shares being made, the holder of every two shares in the Langlaagte Estate and Gold Mining Company (Limited) will be entitled to one share in the Langlaagte Exploration and Building Company (Limited).

DURING the past week the shares of the most prominent Indian mining companies have been in great demand, and, in consequence, prices have advanced. In Ooregum, especially, there has been some active dealing, and this is quite justified by the position of the mine as evidenced by the report, which the directors have just issued, for the half-year ending June 30 last. This is a document in every way satisfactory, as it shows a most encouraging and progressive state of affairs. During the six months a great amount of work has been accomplished. Taylor's section has been especially to the front, and here a large body of rich quartz has been developed. The shaft has been sunk during the six months 126 feet in a lode averaging 4 feet wide, and of an average assay value of 2 ounces 18 dwts. 7 grains per ton. The lode, we are informed, still continues rich, and, according to the report of August 13, it was 2 feet 8 inches wide, and worth 2 ounces 6 grains to the ton. At Probyn's and Wallworth's no feature of interest has been presented, the poor zone of rock at the latter place not having yet been passed through. At Lowe's shaft, however, the prospects have improved. The monthly returns from the beginning of the year have been wonderfully consistent. Those for June, with the exception of May, which, of course, was a day longer, were the largest for the period under review. Altogether the returns, compared with those of the previous six months, show an increase of 2388 ounces, of the value of £9560 14s. 6d. An additional quantity of quartz has been stamped, and the reserves have increased. The next interim dividend will be due in September.

It is not surprising, considering the almost exclusive attention which it bestows upon South African mines, that our contemporary, the *Financial News*, should be a little behind the times in its knowledge of the progress of the Welsh gold mining industry. It seems to trust more to its imagination than is well for its reputation, or it could not have made such an absurd blunder as was introduced in one of its leading articles of Thursday. In a leader, commenting upon the mineral statistics of the United Kingdom, it made a passing reference to the gold industry of Wales, observing: "The budding Welsh industry will have to make much greater strides before it will do much to make up for the loss of the lead trade in which the Principality some years ago held a prominent place. Perhaps when the Welsh min owners and the Government Department have

settled their differences it may be possible to judge whether the gold ores are worth working permanently." It will be apparent at once that the principal error lies in the last sentence. As a matter of fact, the differences have already been settled, and the Government has shown, at last, its willingness to aid the industry all it can. The sliding scale, which has been in vogue for some time now, works—if not perfectly—yet wonderfully smoothly, and thus all concerned are satisfied with it. In our articles during March and April of this year, written by our Special Commissioner, we showed pretty conclusively that the industry has made wonderful strides of late, and since that time progress has even been more rapid and wonderful. Our contemporary does not seem to be quite aware of this, but we can assure it that some day evidence will be offered it which will open its eyes very widely.

THE shareholders in Sherlaw's Gold Mines (Limited) appear to be very easy going people, and, apparently, men possessing little critical acumen, or else they would not so easily have consented to an increase of their capital to the extent of £50,000. No evidence has as yet been furnished that the property for the purchase of which the money is to be raised is at all a valuable one. It is true that Mr. Sherlaw himself produced samples which assayed very highly, but it is easy to produce these from any hole in the ground, and thus they furnish no evidence or guide as to the value of the property as a whole. These samples, therefore, should have been regarded with more of curiosity than as evidence to convince. But there is another consideration which ought to appeal to the shareholders far more strongly. It is well known that this company was promoted by the Coolgardie Gold Syndicate, the directors of which are also the directors of Sherlaw's. Thus the buyers and the sellers are the same people, and the manager of the one company is the manager of the other. When Mr. Sherlaw discovered this new property, the problem presented itself to him whether he should offer it to the syndicate or to the company, and at last he decided to offer it to the promoting concern. The directors of the former accordingly sell it to themselves as directors of the latter; but what is significant was that these delicate complications and delicate problems were passed over in comparative silence at Friday's meeting. The Chairman merely alluded to it in the following ambiguous terms:—"The claims and leases he [Mr. Sherlaw] recommends us to purchase belong to the Coolgardie Syndicate, but he strongly advises that it should be acquired for the Sherlaw Gold Mine, which they adjoin, and thus form one property. The directors saw the wisdom of this course at once, and bought the claims on behalf of this company, and hence the reason we are asking you to increase the capital to-day." Further comment upon it is needless.

THERE has been another crop of statutory meetings during the past week, the majority of them, as usual, being held in connection with West Australian companies. At the meeting of the Golden Arrow Mines (Limited) the Chairman delivered a statement which must have highly pleased his audience, and one which must have created in their minds hopes of approaching prosperity. In criticising and commenting upon the speech, it would be difficult to arrive at any other conclusion than that the prospects of the mine are exceedingly promising. The information that has regularly arrived from the property is quite sufficient to show that the progress has been regular and in the right direction, indicating that as the mine is opened up and sunk deeper the lode improves in width and richness. The Chairman was unable to announce that the property had as yet been transferred to the company, but news of this was expected every day, and he hoped to be able at any time to communicate the fact to the shareholders. The plans for the machinery are already completed, and the directors say that they have reason to believe that the mine will be in thorough working order in about six months. We can quite endorse the concluding portion of his speech, in which he expresses the hope that Western Australia will in the future rival in richness South Africa. Of this, at the present moment, many are doubtful; but, on the other hand, there are a few, whose opinions are worthy of great respect, who are thoroughly convinced in their own minds that it will not only rival South Africa, but will out-diatece it. It is a grand thing for the mining industry that there is no competition. There is rivalry of a kind, but it is friendly, and will have no other result than that of benefiting the industry in particular and the world in general.

ANOTHER statutory meeting was that of the Mount Rowe Consolidated Mining Company (Limited), a company which, on its presentation to the public, was well responded to. As a result of this response, and of the capital thereby subscribed, the directors were early enabled to complete the purchase of all the properties for which they were in treaty. But little evidence was forthcoming at the meeting for anyone to form any reliable opinion as to the value of the property, or as to how it is likely to turn out. Even the directors themselves, for reasons which were put forward at the meeting and which appear to be fairly satisfactory, are likewise ignorant of the quality and character of the ore. Until they know this they are adopting the right course, and one which can everywhere be commanded, in not going to any great expense in sending out machinery until some evidence is furnished them of the value of the mine. They have selected as manager Mr. Wright, and one of their instructions to this gentleman was that as soon as he arrived at the colony he was to take steps to crush at some outside mill whatever ore was lying on the property, and also, as far as possible, in a short time to raise some fresh ore from the mine. As soon as he arrived at the property he sent home some very encouraging cablegrams, with which, of course, the directors were well pleased, and they naturally base upon them hopes of the property turning out a successful venture. The Chairman, at Tuesday's meeting, occupied the concluding portion of his speech with reference to the splendid position of some of the properties in the immediate

neighbourhood, but, of course, this is no direct evidence that the mine possessed by the Mount Rowe will turn out equally as valuable. Nevertheless, the probabilities are in favour of this, and that is all that can at present be said about it. Some importance may be attached to the opinion of Mr. Henochberg, one of the vendors, who, as evidence of his conviction of the value of the property, applied in the ordinary manner for 2500 shares, in addition to his receiving his proportion of vendors' shares. No doubt his opinion and his action will go a long way to raise the hopes of shareholders, and incline them to look forward with a great degree of confidence to the ultimate fate of the undertaking.

SOME weeks ago we announced that the Governor of Australia (Sir William F. C. Robinson) had resigned his position, a step which naturally caused a great deal of surprise, which surprise has not yet subsided, for the significant reason that no explanation has yet been offered for his resignation. It seemed all the more astounding inasmuch as Sir William F. C. Robinson was an enthusiastic believer in the resources, mineral and otherwise, and in the destiny of Western Australia. The opinion which he expressed on several occasions at public gatherings was given in no mild or measured language, and thus no one listening to him would in the least misapprehend his conviction. The sarcasm with which, on its announcement, the *St. James's Gazette* treated his resignation was, perhaps, a little unwarranted; nevertheless, it cannot be denied that it gave expression to the feelings and opinions of a great number. Our contemporary said:—"The reason for the resignation is not hard to guess. Sir William Robinson, perhaps, thinks that directorships in the City are better than Governorships in Australia." During the past week it has been announced that the Governorship of the colony has been given to Colonel Gorod Smith, the son of Mr. T. Smith, M.P., who died in 1880. Colonel Smith has himself been in Parliament as Liberal member for High Wycombe from 1882-5. He was defeated as a Unionist in West Hull in 1892. By profession he is a banker, and the family is related to the present Home Secretary as well as to Lord Harrington. He is better known as a railway magnate than as a politician. The Hull and Barnsley Railway, of which he is Chairman, owes its existence to him. He is a Groom-in-Waiting to the Queen.

A NEW source of interest to every metallurgical joint-stock shareholder—and one, too, of much importance—has just been created across the border by the establishment in the West of Scotland of an entirely fresh industry. In a word, the Scots have entered the field of competition with Sheffield, who up till now has had exclusive possession, in the manufacture of steel armour-plates. Messrs. Williams Beardmore and Co., of the Great Parkhead Forge, on the Clyde, are producing, for the first time in Scotland, the armour-plates known as casemates, for one of the new Admiralty warships. It is not easy for the uninitiated to realise the enterprise exhibited by the company in entering upon this important venture single-handed. There has been no drafting of experts from other quarters, and the cost of the new departure in initial colossal forging presses, rolling machinery, and other plant, will run into very many thousands sterling even to inaugurate the undertaking. That other places should not have made a trial of the trade long ago is chiefly due to the enormous expenditure required, and the lack of the accumulated experience to be found in Sheffield—the home of the manufacture. There is another grave consideration—the lack of continuous employment. Although the three world-renowned armour-plate making establishments at Sheffield are now, happily, full of work, there have been long periods of inaction, which go far to discount the animation at other times. The Clyde has no light task before it in the fresh undertaking on which it has entered, and its progress will be watched with eager earnestness. The magnificence of the business deserves that it should conspicuously succeed.

We have received the usual annual report of the Secretary for Mines of the Colony of Victoria for the past year. The principal object of interest is the gold production, which is given at 673,680 ounces, being an increase of 2554 ounces over the previous year. It is, moreover, the biggest produce in any one year since 1885, so that it looks as if the improvement in the gold output, which commenced in 1892, after a long period of constantly diminishing production, were becoming steady and continuous. It is interesting to note that the above grand total is made up of 254,308 ounces 11 dwts. of alluvial and 419,371 ounces 9 dwts. of reef gold. The gold quartz crushed is said to have yielded on the average 8 dwts. 8 grains of gold to the ton—the lowest figure yet recorded. It is hard to say whether this fact is due to the present possibility, with improved methods and machinery, of treating low grade ore to advantage, or whether it is merely the result of greater care having been taken in collecting crushing returns, which latter are, by-the-way, even now incomplete.

ONE of the French financial papers publishes an interview with Mr. F. B. Grey, cousin of Earl Grey, in which that gentleman's opinion as to the future generally of Mataboleland, and particularly of Rhodesia, was elicited. Naturally the opinion was highly favourable, but it was couched in temperate language, and proper account was taken of some of the disadvantages and difficulties which will have to be encountered in the pursuit of mining in that country. So far as the present is concerned, there is, of course, the great disadvantage of the absence of proper railway communication between some of the auriferous districts and the outside world, and this, so long as it remains, must necessarily be a great weight upon the expansion of the industry to its fullest degree. Machinery and fuel are necessarily dependent upon good railway communication, and when these are difficult to be obtained, the minor is certainly handicapped. It must, however, be remembered that those are still early days, and that already a great deal has been done to ensure a good railway service in the future as so new a colony can in the nature of things expect.

## THE MINING MARKET.

FRIDAY EVENING.

A Heavy Settlement satisfactorily arranged.—West Australians booming at the close.—Big movements in the Gold Fields Group.

After such a week of inactivity as we had to record when last writing, it was not to be expected that Saturday would present altered conditions. Dealings were on a very small scale, many leading members, in addition to the Jewish contingent, having taken advantage of the opportunity for a "week end" holiday. There was nothing, however, beyond absence of business to bring about lower quotations, and where prices sagged, shares were quickly picked up by clever dealers who had not long to wait for their profit, for on Monday, the eve of the Contango day, a better tone had already manifested itself. A good many operators took time by the forelock and arranged a portion of their carrying over a day ahead. There was naturally some fidgeting in other quarters out of apprehension as to the possibility of not getting shares "taken in," and this led to sales for cash on a somewhat extensive scale. The remarkable feature was that large purchases were being made simultaneously for the new Account at such wide differences from the money prices, as to amply compensate the go-between jobbers for the loss of onerous Contango rates. This state of affairs obtained in the West Australians, no less than the Kaffir Market, whilst considerable support was forthcoming from the Continent for the former section. The Miscellaneous Market was rather more active, the Hauraki Group being strong on Foreign buying, whilst Broken Hills were wanted to close bear accounts. On Tuesday the regular carry-over began, and was conducted under conditions very similar to those ruling on the previous occasion. Rates were very stiff, and in many instances it was impossible to carry-over at all. In spite of this, a strong tone set in from the first, and big rises were established in such shares as East Rands and Rand Mines. In the West Australian department about 9 per cent. was the average Contango rate. The buyers for new Account, however, disregarded any slight drawback of this kind, and prices bounded up. Continuation charges were more moderate in the Miscellaneous section, where extended attention was devoted to Indians. On Wednesday the completion of the Carry-over was accomplished, and in the face of a good deal of profit-taking, prices continued strong, and further substantial gains were scored. Buoyancy was once more the order of the day in the West Australian market and there was a better tone in Miscellaneous, Indians being a feature of strength. On Thursday there was a break about mid-day, attributable to forced sales of shares, the owners of which had been unable to carry over. The depression, however, was short-lived and the close was firm, though Street dealings were not characterised by that excitement which so often succeeds a day of fluctuations. West Australians were good throughout, with sensational moves in specialities. To-day is Pay-Day for the Settlement, and we are now launched on a 19 days' Account. Business has been hampered by the exigencies of the Settlement, and, as before, there has been a run on half a dozen specialities to the neglect of the rest of the market. Record prices have been scored in several instances, and the only question that one man puts to another is, "How much longer is this sort of thing to continue?" It is mere platitude to suggest that prices have reached a dangerous level. We did that weeks ago, but, in the meantime, millions have been piled on to the aggregate market capitalisation. The market looks as strong, and as much on the upward tack now as at any time during the boom. Relatively speaking, some shares are cheaper than others, but the majority are preposterously above their value. We can but repeat the note of caution which we have sounded from time to time, not for the protection of smart operators who are content to take risks, keeping a watchful eye for themselves on the hourly fluctuations, but rather for less sophisticated persons who may be carried away by the enthusiasm of the moment and rush into engagements, the danger of which they do not appreciate.

### South African Shares.

It is quite refreshing to be able to chronicle a week's doings in which the name of Barnato is not predominant. The group which takes its name from this much advertised financier has attracted comparatively small attention, and the changes in the various shares are unimportant. Gains of  $\frac{1}{2}$  are shown in Buffels at 9 $\frac{1}{2}$ , and Spes Bona at 3, whilst Pleiades have fallen further away, being quoted at 7 $\frac{1}{2}$ , or about half last week's figure. "Barney" Consols are  $\frac{1}{2}$  better at 5 $\frac{1}{2}$ , on the flotation of the first baby, Chimes Mines. "Barney" Banks still hang fire, and are no better than 3 $\frac{1}{2}$ . Still less in favour are Robinson Banks, which are nominally down at 10, although it was impossible to sell them for money or carry them over. Randfonteins are  $\frac{1}{2}$  higher at 4 $\frac{1}{2}$ , Block B have gained  $\frac{1}{2}$  at 3 $\frac{1}{2}$ , and Langlaagte Estate, after going over 7, are  $\frac{1}{2}$  up on the week at 6 $\frac{1}{2}$ . The sensational move of the week has been in the Gold Fields group, Consolidated Deferred leaving off 3 points up at 19, with Gold Trusts 1 $\frac{1}{2}$  higher at 12 $\frac{1}{2}$ , and Gold Fields Deep 2 $\frac{1}{2}$  better at 13. It would appear that if there is any justification for the price of Gold Fields Deferred, Gold Trust shares must be infinitely cheaper, seeing that the Trust holds an immense block of the Gold Fields shares. East Rands took up the running as soon as dealings were started for the new Account, and from under 11 went straight away to 12 $\frac{1}{2}$  on Tuesday. There have since been fluctuations between 11 $\frac{1}{2}$  and the closing price 12 $\frac{1}{2}$ . The buoyancy is attributed to impending flotations of fresh properties. The companion share in popular favour was Rand Mines, which, after touching 4 $\frac{1}{2}$ , closed four points to the good at 4 $\frac{1}{2}$ . There were rumours of a contemplated splitting of the shares to which no special attention need be paid. Other Deep Level properties have not attracted special attention. The Eckstein series have not fluctuated to any great extent. Modders close a point up at 15 $\frac{1}{2}$ , Simmers have risen  $\frac{1}{2}$  to 23, Henry Nourse  $\frac{1}{2}$  to 7 $\frac{1}{2}$ , Nigel  $\frac{1}{2}$  to 7 $\frac{1}{2}$ , and Salisbury  $\frac{1}{2}$  to 4 $\frac{1}{2}$ . Wolhuters have been a feature to-day, their jump of  $\frac{1}{2}$  to 12 $\frac{1}{2}$  completing a rise of 1 $\frac{1}{2}$  on the week. There has been a renewal of activity in Van Ryns which close  $\frac{1}{2}$  better at 9 $\frac{1}{2}$ , buying being based upon a fresh appreciation of the value of the company's holding in the subsidiary North and West companies. Apex which was so sensational hoisted to the neighbourhood of 20, has come back like the proverbial rocket stick, the shares being practically unsaleable at 7 $\frac{1}{2}$ . There has been recovery of 2s. in Coetzee's to 9s. 6d., and Johannesburg Gold Fields about 11s. 6d., have also attracted attention. Village Main Reefs have risen 1 $\frac{1}{2}$  to 9 $\frac{1}{2}$ ; Durban Roodepoort  $\frac{1}{2}$  to 8 $\frac{1}{2}$ ; Clever Estate  $\frac{1}{2}$  to 4 $\frac{1}{2}$ ; Steyne Estate  $\frac{1}{2}$  to 2 $\frac{1}{2}$ ; and Transvaal Gold  $\frac{1}{2}$  to 10 $\frac{1}{2}$ . It is obviously impossible to note all changes in this section, but the foregoing are the most important. In Land shares a large business has again been done, Chartered Boats being  $\frac{1}{2}$  better at 8 $\frac{1}{2}$ . There is an unwieldy

"Bull" account in these shares, as is shown by the fact that as much as half-a-crown Contango was paid. Heidelberg Estates are nearly a point better at 4 $\frac{1}{2}$ , and Mozambique have advanced to 2 $\frac{1}{2}$ . New Africans have been well supported, but close unchanged at 10, whilst the kindred Austral Africans came into strong demand on Tuesday and Wednesday, and after touching 3 $\frac{1}{2}$  close  $\frac{1}{2}$  up at 3 $\frac{1}{2}$ , with a rising appearance. Rhodesian Mining and Finance are slightly easier, but would appear to be a good purchase at the decline, as satisfactory reports are being received from the property. Anglo-French Exploration are  $\frac{1}{2}$  higher at 7 $\frac{1}{2}$ . London and African Exploration is fully three points up on the week at 16 $\frac{1}{2}$ , the rise being the more remarkable when it is remembered that these are 10s. shares. The Lydenburg group has been active, Balkis at 9s. 6d., Eersteling at 9s. 3d., Graskop at 9s., Lisbon at 11s., Spitzkop at 1 $\frac{1}{2}$ , and Lydenburg Estates at 3 $\frac{1}{2}$ . It is not unlikely that this group will come in for increased attention. Diamond shares have been in strong demand. De Beers are 1 $\frac{1}{2}$  better at 31 $\frac{1}{2}$ , and Jagers have put on  $\frac{1}{2}$  at 11 $\frac{1}{2}$ . St. Augustines have improved 1s. to 16s. 6d.

### West Australians.

The great difficulty in chronicling the doings in the West Australian section is to get accurate quotations. The fashion has been started to make a run upon one or two specialities at a time, and these in turn give place to others. Whilst the Account has been in progress no one has known more than three or four prices at a time. We must, therefore, content ourselves with the general statement that the whole market is extremely good at the close, and in recording a few of the changes, make the distinct reservation that the quotations may be subject to adjustment. This sounds rather unprofessional, but at the moment there is no other course open. Prominent features have been two Finance Company shares to which we have drawn attention during the last week or two, Colonial Finance which have risen 3 $\frac{1}{2}$  on the week to 6 $\frac{1}{2}$  premium, and London and Globe Finance a full point better at 2 $\frac{1}{2}$  premium. West Australian Gold Estates have improved  $\frac{1}{2}$  to 3 $\frac{1}{2}$ , and Concessions  $\frac{1}{2}$  to 3. Mines and Banking Corporation are  $\frac{1}{2}$  up at 1 $\frac{1}{2}$ , and Westralia (Limited) is steady at 2 $\frac{1}{2}$ , after being slightly easier. Among the gold shares proper the run on all the Hannan's properties has continued, and although these are now quoted at all sorts of prices, the insiders predict that eventually they will level up to the value of those at present most appreciated. Great Boulders have risen  $\frac{1}{2}$  to 7 $\frac{1}{2}$ , Brownhill  $\frac{1}{2}$  to 6 $\frac{1}{2}$ , Hannan's Reward  $\frac{1}{2}$  to 4 $\frac{1}{2}$ , True Blue 1 $\frac{1}{2}$  to 4 $\frac{1}{2}$ , Star  $\frac{1}{2}$  to 3 $\frac{1}{2}$ , and Napier  $\frac{1}{2}$  to 1 $\frac{1}{2}$ . Associated Gold Mines are  $\frac{1}{2}$  better at 2 $\frac{1}{2}$ , and may be regarded as one of the most promising purchases in this market. Lady Loch had a spurt of  $\frac{1}{2}$  in the middle of the week, carrying the price to 2 $\frac{1}{2}$ . Menzies properties have been taken in hand on the strength of the report of the German export, whose *ipse dixit* is held in such respect. There has been a big business in Hampton Lands, which are 1 $\frac{1}{2}$  better at 8 $\frac{1}{2}$ , with Plains  $\frac{1}{2}$  up at 5 $\frac{1}{2}$ . Plains Exploration are 3s. better at 18s. 6d., on the successful flotation of the "Block 45" Company. Londonderry continue neglected round  $\frac{1}{2}$ . Sherlaw's Gold have had a jump up to 14s. 9d., whilst the parent Coolgardie Syndicate is  $\frac{1}{2}$  better at 1 $\frac{1}{2}$ . Big Blows have risen  $\frac{1}{2}$  to 1 $\frac{1}{2}$ . The market looks good, and it is not unreasonable to expect better prices all round next week.

### Miscellaneous Shares.

The great feature of this section is the rise in Rio Tinto shares, which have spurted during the last day or two from under 18 to 19 $\frac{1}{2}$ . The Continent has joined in the movement, which is based on the Anaconda deal. The allied companies, Mason and Tharsis, have had no sympathetic move. The New Zealand Gold group has shown decided strength, Hauraki and Kapanga each being 1s. up at 15s. A move has been made in the Indian Gold Group, Champion Reefs leaving of  $\frac{1}{2}$  better at 4 $\frac{1}{2}$ ; Mysore a like amount up at 3 $\frac{1}{2}$ , with Nundydroog the turn harder at 2. Broken Hills were in demand for the Settlement, operators for the fall being compelled to pay a backwardation. Decans have advanced to 6 $\frac{1}{2}$ , and are talked better.

**TAMWORTH GOLD.**—Private advices, dated August 17, have been received, we are informed, from Dr. Pratt, a member of the advisory committee of the company in New South Wales, in which he says:—I got your cable on Monday, asking me when the Tamworth would commence crushing, and I at once answered that the machinery can hardly be erected before the middle of September, when crushing would begin. I also told you of another reef Mr. Ballantyne has struck, nearly 2 feet wide, and described to me as being richer than any that Isaacsohn had ever had. I have not yet seen it myself, but Ballantyne wrote me that he is greatly pleased, and he told a friend of mine that he has no doubt that he will be able to pay the company back all their purchase-money and other expenses in the first year, and I can assure you that Ballantyne is not at all a sanguine man. Quite the contrary, for if he has a fault at all, as far as I can judge him, it is an excess of caution in every way almost amounting to an effort to take the gloomiest view possible of everything. Mr. Ballantyne has still got some blasting out of rock to do, to make a place for the erection of the machinery, which is already waiting there on the ground. Between ourselves I think Mr. Ballantyne put his expenses for the necessary dead-work at the mine at far too high a figure; certainly it is a different country and sort of mine to any he has seen before, but he is a splendid man, and will do well I am sure when he once gets the machinery up. As to having to drive 400 feet (as I see by the cutting you have sent me from the *Financial Times*) as he intimates to be necessary, why, in my opinion, by the time he has driven 400 feet more, the Tamworth will be a celebrated mine and the shares will certainly be above £5.

**CABLE** information, confirmed on enquiry at the London office, announces the successful launching at Johannesburg of the first subsidiary company of the Barnato Consolidated Mines. The new venture is called the Chimes Mines (Limited), and it takes 508 claims adjoining the Chimes, the Kleinfontein, and the Chimes Deep. The capital is £375,000, and 300,000 shares are allotted to the Barnato Consolidated as purchase-money. The subscription of the remaining £75,000 has been guaranteed at £2 6s. 6d. by the Barnato Bank; but, in accordance with Mr. Barnato's promise, the shares will be offered at that figure to the shareholders of the Johannesburg Consolidated Investment Company as a free option. Under this arrangement the Chimes Mines will obtain a working capital equivalent to over half of the nominal capital. As the claims are taken over at such a low valuation, it is confidently predicted that Chimes Mines shares will rise to 25 or £6, in view of the brilliant results achieved by properties in the immediate vicinity. The Barnato Bank has the option of taking up the working of the new enterprise, which is only the first of a series to be brought out under the same auspices. At the locations of the various properties held by the Barnato Consolidated are exceedingly good—as may be seen by reference to Goldman's map—the shareholders of that company look like having a little fortune within their grasp. *Financial News.*

A COMMISSION is now sitting in this country collecting evidence with respect to the lawsuit that is in preparation in the Transvaal with regard to the MacArthur-Forrest patent. It is stated that no less sum than £150,000 in accumulated royalties is awaiting the result of the lawsuit in question.

## THE METAL MARKETS.

### LONDON METAL MARKET.

THE METAL MARKET, LONDON, SEPTEMBER 27.

#### Copper.

We have had an uneventful G.M.B. market this week, without any prominent feature, the quantities treated having been moderate, and the range of values not wide. Some 600 tons daily were done on Monday, Tuesday, and Wednesday, the prices paid being £48 8s. 9d. to £48 11s. 3d. for s.c., and £46 16s. 3d. to £46 18s. 9d. for three months. On Thursday the turnover was more than double the previous daily average, but prices remained within the range already named. To-day the business done amounted to about 800 tons, at £46 3s. 9d. s.c., and £46 10s. to £46 16s. 3d. three months, and we closed decidedly firmer at £46 8s. 9d. s.c., and £46 16s. 3d. three months. The decline during the week was chiefly due to realisation, but the close was marked by a brisk recovery as shown above. American prices are maintained, though sellers have been rather more accessible. Demand continues on a moderate scale, the most active fall being for electrolytic and other finest copper.

#### Tin

opened dull at £64 17s. 6d. spot Straits, and was again dealt in at this price on Tuesday, three months improving, however, from £65 2s. 6d. to £65 3s. 9d. The opening on Wednesday was firmer at £65 s.c. and £65 6s. 3d. three month, but these prices were not maintained, £64 16s. 3d. being taken for s.c. on Thursday. Later, £64 13s. 9d. was paid again, but subsequently £65s. 9d. was recorded for three months. We closed steady at £64 18s. 9d. s.c. and £66 6s. 3d. three months. Billiton opened at £1. 38s. 6d. s.c., and 39 three months was quoted on Tuesday at £1. 38s. 6d. and on Wednesday at £1. 39s. On Thursday attention was monopolised by the monthly Banca sale, which realised an average of £. 39s. This morning Billiton was wired at £. 39s. 6d. s.c. and £. 39s. 6d. three months, and Banca s.c. at £. 39s.

#### Pig-Iron.

It is now thought that the threatened strike in the Clyde yards will be averted, and the Glasgow market has, after dropping to 46s. 11 $\frac{1}{2}$ d., improved to 47s. 9 $\frac{1}{2}$ d. s.c. The close is firm at 47s. 8d. Hematite opened at 49s. 1 $\frac{1}{2}$ d. and closed at 49s. 10d., whilst the respective figures for Middlesbrough were 38s. 3d. and 38s. 8d. Scotch shipments last week were 6281 tons, as against 3029 tons in same period of last year.

#### Lead

is firm, and rather dearer, closing at £10 18s. 9d. soft foreign, and £11 to £11 2s. 6d. English.

#### Spelter.

Trade in galvanised iron continues active, and the rise in wool should bring further large orders for galvanisers, thus benefiting spelter in its turn. The latter article is firm at present, and closes at £15 7s. 6d. ordinaries, and £15 10s. special.

#### Antimony

quiet at £31 10s.

#### Quicksilver

steady at £7 5s. firsts and £7 2s. seconds.

The following are to-night's (September 27) prices of metals:—

	Copper.	Alloys.	Iron.	Lead.	Spelter.	Antimony.	Quicksilver.
Tough cake and ingot	50 0 0	50 1 0	65 10 0	11 0 0	2 13 0	15 7 8	7 5 0
Best selected	50 15 0	51 5 0	70 10 0	11 10 0	2 15 0	16 0 0	7 6 0
Electrolytic Copper	51 0 0	55 0 0	75 8 0	12 5 0	2 12 0	17 6 0	7 7 0
Sheets and sheathing	57 0 0	60 0 0	78 5 0	13 6 0	2 11 0	18 0 0	7 8 0
Flat bottoms	60 0 0	63 0 0	85 15 0	14 10 0	2 10 0	19 7 0	8 6 0
Chill bars	63 0 0	68 0 0	90 18 0	15 10 0	2 11 0	20 6 0	8 7 0
Good merchantable, 1/2 spot, & 3 months respectively	48 8 0	53 18 3	95 20 0	16 10 0	2 12 0	21 5 0	8 8 0
Copper tubes, seamless	0 0 75%	0 0 75%	0 0 75%	0 0 75%	0 0 75%	0 0 75%	0 0 75%
BRASS: Wires	0 0 5%	0 0 5%	0 0 5%	0 0 5%	0 0 5%	0 0 5%	0 0 5%
" Tubes (solid drawn)	0 0 6%	0 0 6%	0 0 6%	0 0 6%	0 0 6%	0 0 6%	0 0 6%
" Sheets	0 0 6%	0 0 6%	0 0 6%	0 0 6%	0 0 6%	0 0 6%	0 0 6%
PHOSPHOR BRONZE: Alloys II.	78 0 0	81 0 0	88 0 0	95 0 0	102 0 0	110 0 0	118 0 0
" III. or	81 0 0	83 0 0	90 0 0	97 0 0	104 0 0	112 0 0	120 0 0
" XI. or XII.	83 0 0	85 0 0	92 0 0	99 0 0	106 0 0	114 0 0	122 0 0

# "THE MINING JOURNAL" SHARE LIST.

**ABBREVIATIONS AND REFERENCES.**—The following are the significations of the abbreviations and references which occur in the Share List:—*Ay.*, Antimony; *A.*, Arsenic; *Bi.*, Blende; *Bx.*, Borax; *C.*, Copper; *D.*, Diamond; *G.*, Gold; *J.*, Iron; *L.*, Lead; *M.*, Manganese; *N.*, Nitrates; *P.*, Phosphates; *Q.*, Quicksilver; *R.*, Ruby; *S.*, Silver; *S-L.*, Silver-lead; *Sul.*, Sulphur; *T.*, Tin; and *Z.*, Zinc. \* in the "Amount of Share" column of British Mines signifies that the mine is conducted on "Cost Book" principles; I in the "Head Office" column of African Mines signifies that the address given is not that of the head office, but of a sub, or transfer office; and †, following the names of African Mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

\* The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share Dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct, we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

## BRITISH MINES.

Name	Closing Price, Sept. 27, 1895	Closing Price, Sept. 20, 1895	Am't. of Share	Latest Dividend	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office	
Blue Hills ... CT	2/-	2/-	4/-	*	£ s. d.	£ 5 19 5	5,353	Cornwall	
Botallack ... I	—	—	—	*	—	51 4	1,880	Cornwall St. Just.	
Carn Brea ... T	1 1/4	1 1/4	1 1/4	1 1/4	—	22 8 5	6,000	Cornwall	
Cook's Kitchen ... T	—	—	—	*	—	35 15 10	4,900	Camborne.	
Devon Gawton CA	par 1/2 pm.	par 1/2 pm.	1 0	—	0 12 6	25,000	Tavistock	5, Finsbury circus.	
Devon Gt Cons. CA	29/ 30/	29/ 30/	5 0 0	1/6 May '95	2 0 0	10,240	Devon	5, Finsbury circus.	
Doleoath ... I	17/ 13/	18/ 10/	1 0	—	1 0 0	—	Cornwall	Camborne.	
Do. ... I	5/ 6/	6/ 6/	1 0	—	part paid	—	Camborne.	Camborne.	
Drakewell ... CTM	2/- 2/6	1/6 2/-	5/	—	0 2 0	61,856	Cornwall	Dashwood House.	
East Halkyn ...	20/- 25/-	20/ 25/	1 0	—	0 12 6	12,000	Flintshire	67, Lord St., Liverpool.	
East Pool ... AT	4 4/4	4 4/4	4	4/4	0 9 9	6,400	Cornwall	Illogan.	
Gawton ... CA	—	—	2 10	—	2 7 3	12,000	Devon	20, Great St. Helens.	
Great Laxey ... L	1 2	1 2	4 0	5/- Apr. '92	4 0 0	15,000	I. of Man	Douglas, Isle of Man.	
Green Hurh ... L	1/8	—	1 0	—	—	32,000	Cumbernauld	Newcastle.	
Halkyn ... L	9 10	9 10	1 0	2/- June '95	1 0 0	10,000	Flintshire	Chester.	
Do. Dla. Mn. Drain	10 11	10 11	10 0	5% Aug. '95	10 0 0	10,000	Flintshire	CornEx.Cmb, Chester.	
Isle of Man ... L	3 1/4	4 1/4	3 1/4	4 1/4	5 0	2/- —	95	I. of Man	
Killifreth ... T	7 9/	10/ 11/	*	1/6 Nov. '94	5 11 6	6,000	Cornwall	Chester.	
Leadhills ... L	7 1/4	7 1/4	7 1/4	7 1/4	—	20,000	Denbigh	Truro.	
Llanarmon ... par	par	par	1 0	—	1 0 0	21,990	Finstbury-circus.	30, Finsbury-circus.	
Llanarmon ... par	par	par	1 0	—	0 15	3,790	Chester.	S. W. Wales.	
Levant ... CT	4 1/4 4/4	4 1/4 4/4	4 1/4 4/4	4/— Nov. '94	11 9 6	2,500	Cornwall	St. Werburgh Chmbs.	
Lovell ... T	—	—	—	—	1 1/3 0	7,165	Penzance.	W. Austral.	
Miners ... L	—	—	—	—	5 0 0	6,600	Devon	3, Gt. Queen-st., S.W.	
Neath & Tidie ... LZ	1/6	1/6	1 0	—	0 18 0	48,875	St. Werburgh Chmbs.	Minera, N. Wales.	
New Cooke Kitn. TC	—	—	—	—	10 18 3	4,920	St. Werburgh Chmbs.	Newcastle-on-Tyne.	
New Miners ...	—	—	—	—	1 0 0	30,000	St. Werburgh Chmbs.	Camborne.	
North Hendre ...	—	—	2 10	—	2 10 0	11,854	St. Werburgh Chmbs.	6, Queen-street-place.	
Parc ... LZ	—	—	1 0	5 p o year 82	1 0 0	5,000	St. Werburgh Chmbs.	11, Ngtw. st., Cntr.	
Phoenix United ... TC	—	—	—	—	1 0 0	10,665	St. Werburgh Chmbs.	Billiter sq. buildings	
Polberro ... T	5% 7%	5% 7%	5% 7%	—	2 1 5	18,000	St. Werburgh Chmbs.	Liskeard.	
Rhosemor ... L	par	par	1 0	10 p o Sept. 91	1 0 0	1,000	St. Werburgh Chmbs.	6, Queen-street-place.	
Rhosemor ... L	par	par	1 0	—	0 19 0	18,000	St. Werburgh Chmbs.	11, Ngtw. st., Cntr.	
So. Conduorun ... TC	2/ 3/	2/ 3/	3/ 6	3/ 6 Apr. '93	7 17 6	8,123	St. Werburgh Chmbs.	20, Great St. Helens.	
South Crofty ... TA	14/ 12/	14/ 12/	14/ 12/	—	17 10 6	5,769	St. Werburgh Chmbs.	Pool, Cornwall.	
S. Frances Untd. T	1 1/4	1 1/4	1 1/4	—	2 7 6	6,000	St. Werburgh Chmbs.	Redruth.	
South Halkyn ...	par	par	1 0	—	1 0 0	10,000	St. Werburgh Chmbs.	8, Werburgh Chmbs.	
South Halkyn ...	par	par	1 0	—	0 7 0	30,000	St. Werburgh Chmbs.	8, Werburgh Chmbs.	
Talacre ...	par	par	1 0	—	0 18 0	20,000	St. Werburgh Chmbs.	8, Werburgh Chmbs.	
Tincroft ... T	6 6/4	7 7/4	7 7/4	2/- Aug. '94	15 7 6	6,000	St. Werburgh Chmbs.	8, Werburgh Chmbs.	
W. ardale ... L	8/9	8/9	4 0	1/3 Oct. '90	1 10 0	50,000	St. Werburgh Chmbs.	3, Lombard-court.	
West Frances ... T	16/ 34	16/ 34	1 1/4	—	2/5 Aug. '94	17 1 7	6,144	St. Werburgh Chmbs.	37, Walbrook.
West Kitty ... T	7/4 4/4	4 4/4	4 4/4	2/— Dec. '94	1 2 0	6,000	St. Werburgh Chmbs.	Redruth.	
Wheat Agar ... TA	16/ 34	16/ 34	16/ 34	2/5 Aug. '94	23 15 2	8,000	St. Werburgh Chmbs.	2, Cophall Bldgs., E.C.	
Wheat Bassett ... TC	23/ 3	23/ 3	23/ 3	10/- Apr. '94	12 3 0	6,144	St. Werburgh Chmbs.	12, 3, Union-court, E.C.	
Wheat Friendly ... T	1/16	1/16	1/16	—	0 12 0	10,000	St. Werburgh Chmbs.	14, Broad-street.	
Wheat Grenville ... T	12/16 13	13 13/13	3/— July '95	18 2 0	6,000	St. Werburgh Chmbs.	14, Broad-street.		
Wheat Kitty ... T	34 56	8/ 9/	8/ 9/	3/— Mar. '95	4 5 8	8,590	St. Werburgh Chmbs.	14, Broad-street.	
Wheat Metal & F.T.	—	—	—	—	0 13 9	10,780	St. Werburgh Chmbs.	14, Broad-street.	

## EUROPEAN MINES.

Alamillos ... L	1 1/4	1 1/4	2 0	1/8 Sept. '95	2 0 0	35,000	Spain	6, Queen-street-place
Avala ... Q	0 56	0 56	1 0	1/— May '93	1 0 0	51,584	Servia	4, Tokenho. Bldgs.
Consett Ore ...	8 6/5	6	1 0	5/— July '94	1 0 0	55,200	Spain	19, Grey-st., N'castle
English Cr. Speiter ...	3/6 3/6	3/6 3/6	1 0	2 3/6 Aug. '94	1 0 0	84,000	Lombardy	9, Queen-street-place
Fortuna ... L	1 1/4	1 1/4	1 1/4	2/— Sept. '95	1 0 0	25,000	Spain	6, Queen-street-place
Libiola ... C	3 1/4 3/4	3 1/4 3/4	6 0	2/— Oct. '95	5 0 0	50,400	Italy	Dashwood Ho., E.C.
Linares ... L	5 5/4	5 5/4	3 0	7/— Sept. '95	3 0 0	14,998	Spain	6, Queen-street-place
Mason & Barry ... C	2 5/2 2 5/2	2 5/2 2 5/2	5 0	2/— May '94	5 0 0	185,172	Portugal	87, Cannon-street.
Pestarena ... G	6/6 7/6	6/6 7/6	3 0	—	3 0 0	67,800	Italy	6-7, Queen-street-pl.
Pontigbaud ... SL	—	—	20 0	1/16 Dec. '94	20 0 0	14,000	Coueran.	6-7, Queen-street-pl.
Rio Tinto ... C	18 1/4 19	17 1/4 18	10 0	5/ July '95	10 0 0	325,000	Spain	30, St. Swithin's-lane
Do. (Mort. Bonds)	—	—	100 0	5/ July '95	100 0 0	182,740	Spain	30, St. Swithin's-lane
Do. (2nd do.)	—	—	100 0	5/ July '95	100 0 0	1024,840	Spain	30, St. Swithin's-lane
Do. (3rd do.)	—	—	100 0	5 p.c. Apr. '95	100 0 0	527,080	Spain	30, St. Swithin's-lane
Hipanji ... SQ	—	—	1 0	—	0 19 0	95,000	Servia	120, Bishopsgt.-Wn.
Tharsis ... C Sul	5 5/4	5 5/4	2 0	4/— May '95	2 0 0	825,000	Spain	Glasgow.
West Prus Pre. pref	—	—	10 0	8/ July '95	10 0 0	365	Germany	Walbrook Ho., E.C.
West Prussian Pre.	—	—	10 0	8/ July '95	10 0 0	5,450	Germany	Walbrook Ho., E.C.
West Prussian Or.	—	—	10 0	8/ July '95	10 0 0	14,050	Germany	Walbrook Ho., E.C.
Wohlfahrt ... L	—	—	1 0	2/— Dec. '94	1 0 0	99,534	Prussia	17, Victoria-st., S.W.
Wohlfahrt ...	—	—	1 0	3/— Dec. '94	1 0 0	9,000	Prussia	17, Victoria-st., S.W.

## NORTH AMERICAN MINES.

Alaska Mexican ... G	2 2/4	2 2/4	85	7 1-5d July '95	85	160,000	Alaska	30, St. Swithin's-ln.
Alaska Treadwell								

## "THE MINING JOURNAL" SHARE LIST—(Continued)

## SOUTH AND CENTRAL AMERICAN MINES.

Name.	Closing Price, Sept. 27, 1895	Closing Price, Sept. 20, 1895	Am't. of Share	Latest Dividend.	Called up Per Share	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Anglo-Chilian Ptn	9 9 1/2	9 9 1/2	\$ s.	2 s. d.	2 s. d.	35,000	Antofagast.	123, Bishops-st. W,
Do. 6% Rylet MB	107 109	107 109	10 0	13/11-5 Jun 95	10 0 0	220,000	Antofagast.	123, Bishops-st. W,
Antioquia (ordn.)	—	—	1 0	-/6 Mar. 95	1 0 0	22,823	Colombia	184, Gresham Ho.
B. Giulini Pros.	G 1/3 1/9	1/3 1/9	2/6	25% Oct. 95	2/6	42,453	Brit. Guan	184, Gresham Ho.
Carabobo	G 1/3 1/9	1/3 1/9	2 0	1/- Apr. 94	2 0 0	1,330,000	Venezuela	57, Moorgate-st. E.C.
Carilloma	S	—	—	—	—	200,000	Peru	52, Leadenhall street
Colombia Nit. N.	G 1/2 1/4	1/2 1/4	5/	4/- May, 95	5 0 0	125,000	Colombia	5, Cophall-bldgs., E.C.
Colombia	G	—	—	—	—	32,000	Chili	12, King-st., Liverp'l
Colombian Hg. G	1/2 1/2	1/2 1/2	1 0	1/- July, 95	1 0 0	75,000	Venezuela	184, Gresham Ho.
Copilco	F	2/4 3	2/4 3	2 0	1/6 May '95	2 0 0	Colombia	10, Blomfield-st. t
Darley "A"	G 2/4 3	2/4 3	3 0	—	—	100,000	Chili	Dashwood House, E.C.
Do. "B"	G 3/4 4	3/4 4	4 0	1 0	1 0 0	49,553	Colombia	Manchester
Don Pedro	G 3/4 4	4/- 5/	5 0	94d Feb. '94	5 0 0	30,000	Brazil	12, King-st., Liverp'l
El Callao	G 1/2 1/2	1/2 1/2	1 0	1/- Aug. '95	1 0 0	133,102	Venezuela	184, Gresham Ho.
Froult & B. G	1/2 1/2	1/2 1/2	1 0	—	—	57,600	Colombia	3-5, Queen-street, E.C.
Glenrock	G 1/2 2	1/2 2	1 0	—	—	128,562	Colombia	10, Blomfield-st. t
Graves	G 3/6 4/6	3/6 4/6	4 0	—	—	189,945	Colombia	184, Gresham Ho.
Gundalope	GS 3/6 5/	3/6 5/	1 0	—	—	100,000	Colombia	10, Blomfield-st. t
Huanchea	S	—	—	5 0	4/- Sept. '94	5 0 0	Honduras	14, Union ct. Old Brid
Jirall	G 3/6 4	3/6 4	5 0	15p.c. Dec. '94	5 0 0	320,000	Bolivia	10, Avnu. d'Alma, Paris
Julia Taital	N 3/6 4	3/6 4	1 0	—	—	105,234	Nicaragua	139, Cannon-street.
Laguna	N 6 6	6 6	5 0	7/6 June 95	5 0 0	110,000	Chili	79/6, Gracechurch-st.
Lautaro	N 10 11	10 11	5 0	15/- May, 95	5 0 0	22,000	Colombia	5, Cophall-building.
Liverpool	G 1/2 2	1/2 2	1 0	—	—	300,000	Chili	184, Gresham Ho.
London Nit.	N 1/2 2	1/2 2	3 0	3/4 Nov. '95	5 0 0	10,000	Chili	9, Gracechurch-st
London Nit. (Prof.)	3/6 4	3/6 4	5 0	8% Nov. '94	5 0 0	22,000	Chili	9, Gracechurch-st
Macaue	1/2 1/9	1/2 1/9	2/	—	0 2 0	200,000	Peru	11, Old Broad-st. E.C.
New Tamarcugal	N 3/6 4	3/6 4	1 10	1s. Dec. '94	1 0 0	130,000	Peru	50, Lime-street, E.C.
Do. 1% Cam Prof	3/6 4	3/6 4	1 10	8p.c. Feb. '95	1 0 0	130,000	Peru	50, Lime-street, E.C.
Do. I.p.c. Doba	76 80	77 80	100 0	100 0	100 0	226,000	Peru	50, Lime-street, E.C.
Orita	G 1/2 1/9	1/2 1/9	1 0	1/- April '95	1 0 0	30,000	Colombia	10, Blomfield-street.
Orito Preto	G 1/2 1/9	1/2 1/9	1 0	1/- Aug. '95	1 0 0	80,000	Brazil	6, Queen-street-place.
Pac. & Jaspampa N	2/6 3	2/6 3	5 0	4/- May, 95	5 0 0	72,000	Terapaca	3, Gracechurch-st.
Primitiva	N 1/4 1/4	1/4 1/4	5 0	20/- Oct. '95	5 0 0	40,000	Chili	184, Gresham Ho.
Quichua	G 3/4 4	3/4 4	3 0	5/2 Mar. '92	3 0 0	241,958	Venezuela	8, Nicholas Lane.
Rosario	N 4/4 5/4	4/4 5/4	5 0	5/7 Aug. '95	5 0 0	120,000	Chili	57/5, Old Broad-street.
Roelito Deb. Corp.	108 109	108 109	100 0	5/7 April '95	100 0	247,000	Chili	57/5, Old Broad-street.
St. John del Rey	G 1/2 1/6	1/2 1/6	1 0	10% June '95	1 0 0	200,000	Chili	57/5, Old Broad-street.
San Donato	N 1/2 2	1/2 2	3 0	10% Oct. '95	5 0 0	32,000	Chili	12, King-st., Liverp'l
San Jorge	N 5 5	5 5	5 0	10% May, 95	5 0 0	75,000	Chili	9, Gracechurch-st.
San Pablo	N 2 2	2 2	6 0	2/4 Nov. '94	6 0 0	32,000	Chili	9, Gracechurch-st.
Santa Barbara	G —	—	10/	1/3 Dec. '95	10/	60,000	Brazil	184, Gresham Ho.
Santa Elena	N 36 56	36 56	5 0	5/- Oct. '95	5 0 0	22,000	Terapaca	3, Gracechurch-st.
Santa Rita	N 3 3/4	2 3/4	3 0	10% May, 95	5 0 0	20,000	Chili	184, Gresham Ho.
San Sebastian	N 1/2 2	1/2 2	5 0	5/ May, 95	5 0 0	29,000	Colombia	23, St. Swithin's-lane.
Segovia	G —	—	10/	10% July '95	10/	840	Colombia	23, St. Swithin's-lane.
Soco Prof.	G —	—	10/	10% July '95	10/	10,000	Colombia	18, Finsbury-circus.
Soco Ord.	G —	—	10/	10% July '95	10/	14,000	Colombia	18, Finsbury-circus.
Tolima "A"	S 7/4 8/4	7/4 8/4	5 0	10/- July, '95	5 0 0	6,000	Colombia	18, Finsbury-circus.
Do. "B"	S 7/4 8/4	7/4 8/4	5 0	10/- July, '95	5 0 0	200,000	Venezuela	18, Finsbury-circus.
Do. Prof.	2/2 2/6	1/6 2/6	5 0	—	—	—	Bingo. Dm	110, Cannon-street.
West Indian	G 2/2 2/6	2/2 2/6	1/	—	0 1 0	1,725,585	Bingo. Dm	110, Cannon-street.

## INDIAN AND ASIATIC MINES.

Asia Minor Prof. Sl.	—	—	10/	—	0 10 0	42,430	Asia Minr	2, Metal Ex. Bldgs.
Do. Ord.	—	—	10/	10/	0 10 0	55,838	Asia Minr	2, Metal Ex. Bldgs.
Balaghat Mysore G	3/6 M	9/16 3/4	1 0	—	0 19 C	159,945	India	5-7, Queen-street-p.l.
Burns Ruby	N 23/8 24/8	23/8 24/8	1 0	—	—	295,551	Burmah	Suffolk House, E.C.
Champion Beef.	G 4/4 4/4	4/4 4/4	1 0	4/- Sept. '95	1 0 0	200,000	India	6-7, Queen-street-p.l.
Color Central	G 1/2 2/2	1/3 1/9	1 0	—	1 0 0	200,000	India	6-7, Queen-street-p.l.
Cormandel	G 9/16 11/16	9/16 11/16	1 0	—	0 17 5	95,000	India	6-7, Queen-street-p.l.
Goldfield Mysore G	1/4 1/4	1/4 1/4	1 0	1/- July '95	1 0 0	275,000	India	6-7, Queen-street
Hydrodab Dec.	S 5/4 6/4	5/6 5/6	5 0	—	5 0 0	115,000	Deccan	18, St. Helen's-place
Kempinski GdF	2/4 2/6	2/3 2/9	5 0	—	0 2 6	750,000	India	6-7, Queen-st.-place.
Mysore	G 31/6 32/6	21/5 21/5	1 0	2/8 June '95	1 0 0	248,354	India	6-7, Queen-st. pl.
My. Hatchall	G 2/2 2/2	2/2 2/3	1 0	—	0 18 0	100,007	India	2, East India Avenue
Myre Reefs	G 12/13 13/13	13/13 14/16	1 0	—	1 0 0	160,000	India	6-7, Queen-street
Myre West (N)G	3/4 3/4	3/6 3/6	1 0	—	0 19 0	127,408	India	6-7, Queen-street
Myre Wynnaid G	3/4 3/4	11/16 12/16	1 0	—	0 19 0	125,000	India	6-7, Queen-street
Nine Reefs	G 2/2 2/6	2/3 2/9	10/	—	0 10 0	250,000	India	6-7, Queen-street-p.l.
Fundydrog	G 11/16 21/16	11/16 21/16	1 0	1/6 July, '95	1 0 0	200,000	India	6-7, Queen-street-p.l.
Gorugum (Df.O.)G	31/6 32/6	31/6 32/6	1 0	2/- Aug. '95	1 0 0	145,000	India	6-7, Queen-street-p.l.
Do. (10% Prof.)	3/4 3/4	3/4 3/4	1 0	4/- Aug. '95	1 0 0	107,011	India	6-7, Queen-street-p.l.
Do. (10% Prof.)	3/4 3/4	3/4 3/4	1 0	2/- Aug. '95	0 5 0	12,369	India	6-7, Queen-street-p.l.
Pahang Kabang T	T 1/2 1/2	1/2 1/2	1 0	—	1 0 0	200,000	Malay Pn	4a, Jeffrey's sq., E.C.
Strata Develop.	1/2 1/2	1/2 1/2	1 0	—	0 19 0	184,492	Pahang	15, Copthall Avenue
Temkonda G	1/6 2/6	1/6 2/6	4/	—	0 2 6	187,491	Mysore	6-7, Queen-street-nl.

## AFRICAN MINES.

Abencora Beef	G 1/1 1/6	1/6 1/9	5/	—	0 4 0	—	Millwood	16, Tokenhouse Yard</td

The LIST OF SUBSCRIPTIONS will OPEN on MONDAY, September 28th, and CLOSE at 4 o'clock the same Day for TOWN and COUNTRY.

A sufficient number of Shares to provide the required Working Capital having already been privately applied for, the Directors will proceed to Allotment immediately after the closing of the Lists.

## THE IMPERIAL WESTERN AUSTRALIAN CORPORATION, LIMITED.

(Incorporated under the Companies Acts, 1862 to 1893, whereby the liability of the Shareholders is limited to the amount of their Shares.)

### CAPITAL ...

In 500,000 Ordinary Shares of £1 each, whereof 5000 are Deferred Shares.

£500,000.

ISSUE OF 50,000 ORDINARY SHARES, Payable:—2s. 6d. per Share on Application, 5s. per Share on Allotment, and the balance as and when required in Calls not exceeding 5s. per Share.

### DIRECTORS.

#### WESTERN AUSTRALIA:

SIR J. G. LEE-STEELE, Perth, W.A., Speaker of the Legislative Assembly.  
Hon. H. W. VENN, M.A., Perth, W.A., Commissioner of Railways and Director of Public Works.  
Hon. F. H. PARKER, Q.C., M.L.C., Perth, W.A., late Colonial Secretary.

#### ENGLAND:

\* ALBERT F. CALVERT, Chairman, The North West Australian Gold Fields (Limited); and of the Consolidated Gold Mines of Western Australia (Limited); Director, Big Blow Gold Mines (Limited), 47, Old Broad Street, E.C.  
SIR W. G. DAVIES, K.C. S.I., formerly Financial Commissioner of the Punjab, and a Member of the Legislative Council of India; Director, The Central Exploration Company of Western Australia, Limited, The Meadows, Claygate, Essex.  
WILLIAM GRAHAM LOYD, Director of the Bank of Mauritius, Limited, 122, Cannon Street, E.C.

\* Will join the Board after Allotment.

### BANKERS IN LONDON.—LONDON & SOUTH-WESTERN BANK, LIMITED, 170, Fenchurch Street, E.C.

BANKERS IN WESTERN AUSTRALIA.—UNION BANK OF AUSTRALIA, LIMITED, 1, Bank Buildings, Lombard, and Western Australia.

BROKERS.—MESSRS. MARCUS, PECZENIK & TREW, 1, Angel Court, E.C.

SOLICITORS.—MESSRS. SUTTON, OMMANNEY & RENDALL, 3 and 4, Great Winchester Street, E.C.

AUDITORS.—MESSRS. PRICE, WATERHOUSE & CO., 44, Gresham Street, E.C.

SECRETARY.—J. S. G. CAMPBELL,

OFFICES.—3 and 4, Great Winchester Street, E.C.

### PROSPECTUS.

It is a most valuable property. Is a 4-ounce property. The amount of available ore by tunnelling 20,000 tons. Fuel and water both abundant.

ROBERT PALMER.

The following telegram has been received from Mr. FREDERICK MACGREGOR, Mining Engineer:

ROBBORNE, August 23, 1895.  
Western Shaw.—36 acres, 15,000 tons can be obtained from tunnel driven 200 feet above the water level. Two tons an average sample from three leases. Crushed 23 ounces 3 dwts. Average width of the vein is 2 feet. Thoroughly good property. Fuel and water both abundant.

MACGREGOR.

Since the above telegram and reports have arrived samples of stone from the Western Shaw have been received in London, and they are now in the hands of Messrs. Johnson, Matthey and Co. for assay. Instructions have been cable to the Agent in North-West Australia to have the area increased to 50 acres, and a cablegram is daily expected, saying that this has been done.

The machinery for the Western Shaw Gold Mine has already been despatched to the Colony.

### 4. PATENTS FOR IMPROVEMENTS IN DRY CRUSHING.

The great drawback to successful gold mining on many of the fields in this Colony is the undoubtedly short supply of water. At the present time it is proved that not one in fifty of the mines at Coolgardie is capable of working more than 25 per cent. of their crushing power. In order to cope with this difficulty, the valuable patent rights granted for the United Kingdom, and applied for in the Colony of Western Australia, have been secured by the Vendor, for the dry process of stamping and crushing for the dry amalgamation of gold ores (entailing little additional cost over water stamp), which may be converted into wet, or vice versa in three hours, thereby enabling the ore to be continually crushed and amalgamated immediately on the opening of the mines, without the great disappointments and loss of time and money now being experienced.

Under the Agreement herein referred to, the Corporation has purchased these Patent rights, and proposes to form a subsidiary Company with the object of establishing and working a General Engineering and Foundry Works, and to act as General Works Contractors and Purveyors of Mining and other requisites in Western Australia.

### 5. PUBLIC CRUSHER AT TOWERANNA.

The Vendors have been approached and are at present completing arrangements for the erection of a Public Crushing Battery at Toweranna Creek, in North-west Australia. A large number of men are at present on this field, and leases covering an area of 105 acres have been pegged out, and are being actively opened up, while further leases are being applied for every day. All the Public Batteries in Australia are paying high returns, and at the Bamboo Creek Battery, where the cost of crushing is £2 10s. per ton, a handsome profit has been earned since its erection. Under the Agreements the Company acquires all interest in and benefit of the said arrangements.

Taking into consideration the heavy and increasing demand for such a battery, and the large measure of profit shown in working it, the Directors anticipate a very remunerative return from this undertaking.

### 6. STEAM PACKET AND TRANSPORT SERVICE: SWAN RIVER.

The Corporation has registered and made arrangements to issue The Western Australian Steam Packet and Transport Company, Limited, which is founded to provide steamers and other plant for the conveyance of passengers and goods on the Swan River, Western Australia, and such other waters as may be deemed desirable. The Company proposes to place at once one suitable passenger steamer, two steel barges which can be utilised for passengers or cargo, when required; and also to build a floating wooden dock of native Jarrah timber. This floating dock will, it is anticipated, form a profitable adjunct to the Company's operations, as all vessels requiring to be docked at present have to be lifted or careened, or proceed to the nearest dry dock at Adelaide (S.A.), distant over 1000 miles. There are also a large number of lighters, tugs, launches and sailing yachts that would make use of the floating dock.

The Directors have arranged a sale to a subsidiary Company, at a profit to the Corporation, of the Mount Prophecy and Perseverance Gold Mines, and arrangements have been made for the issue, at an early date, of the Western Australian Steam Packet and Transport Company, Limited. The whole of the required Working Capital of such subsidiary Companies has been already subscribed.

The Directors of such subsidiary Companies will be pleased to answer any enquiries to intending Subscribers at the Registered Office of such Companies, situated at No. 24, Coleman Street, E.C.

The Agreements before referred to are (1) an Agreement dated the 28th day of September, 1895, and made between Graham Hill of the one part, and the Company of the other part, and (2) an Agreement of the same date made between Josiah Harris and Albert F. Calvert of the one part, and the Company of the other part. There are various contracts, to which the Corporation is not a party, made by and on behalf of the Vendors and others, with reference to the acquisition of the above properties and interests in connection with the formation of the Company and the subscription of its capital, and as these agreements are or may technically be contracts within the meaning of Section 33 of "The Companies Act, 1867," subscribers must be deemed to have had for all purposes full notice of the dates, the names of the parties to, and contents of, such agreements, and to waive any further compliance with that section. The consent of the Colonial Directors to act having been sent by cable, and there not having been sufficient time to allow of communication by letter, the statements in the Prospectus are made on the authority of the London Directors alone. The above-mentioned agreements, reports, and the Memorandum and Articles of Association can be inspected at the office of the Company's Solicitors.

Under these agreements the Vendors will vest in this company the above-mentioned properties and interests, subject to the payment by the Company of £250,000 in shares only, and subject to, in the case of the Mount Prophecy and Perseverance Mines of one-third interest in shares of the subsidiary Companies when formed, and one-fourth interest in the Engineering Company when formed, to acquire the patents for improvements in dry crushing.

The purchase price has been fixed by the Vendors (who are also the promoters of this Company, and are reselling at a profit) at £250,000, payable as £245,000 in fully-paid Ordinary Shares, and the balance in fully-paid Deferred Shares.

The Deferred Shares to be issued will be subject to the terms of the Memorandum of Association, and will receive no dividend in any year until a dividend at the rate of 12½ per cent. per annum has been paid to the holders of the Ordinary Shares; the respective classes of Shares will then take a moiety of the remaining profits distributable by way of dividend.

The balance (£250,000) of the capital will be reserved for Working Capital and for the general purposes of this Company.

Applications for Shares must be made on the enclosed form, and be forwarded to the Bankers of the Company, together with a deposit of 2s. 6d. per Share. If no allotment is made, the deposit will be returned in full, and if a less number of Shares be allotted than that applied for the balance will be credited in reduction of the amount payable on allotment.

It is intended in due course to make application for a Stock Exchange quotation.

Prospectuses and Forms of Application can be obtained at the Company's Offices, and from the Company's Bankers, Solicitors, and Auditors, 28th September, 1895.

This form of application may be used.

### THE IMPERIAL WESTERN AUSTRALIAN CORPORATION (LIMITED)

#### APPLICATION FOR SHARES.

No. ....  
To the Directors of The Imperial Western Australian Corporation (Limited).

GENTLEMEN.—  
Having paid to your Bankers the sum of £....., being 2s. 6d. per Share payable on application for ..... Shares of £1 each, I request you to allot to me that number of Shares, and I hereby agree to accept the same or smaller number that may be allotted to me, upon the terms and conditions of the Prospectus and Memorandum and Articles of Association of the Company, and I request you to place my name on the Register of Members in respect of the Shares so allotted to me, and engage to pay the further instalments upon such allotted Shares as the same shall become due, and I agree with you and with the Corporation, as Trustee for you and other persons liable, to waive any further compliance with Section 33 of the Companies Act, 1867, than is contained in the said Prospectus.

Usual Signature .....  
Name (in full) .....  
(Mr., Mrs., or Miss)  
Address (in full) .....  
Profession or Occupation .....  
Date ..... 1895.

## CORRESPONDENCE.

## REVIEWS.

*A Practical Treatise on Mechanical Engineering.* By Francis Campion, C.E. Third edition, enlarged and rewritten. (London: Crosby Lockwood and Son).

As long as there are people in existence who think, forsooth, that they can learn a technical subject like engineering from a book, so long, we presume, will there be found writers prepared to supply the demand, although no one can know better than a mechanical engineer how impossible such a task must prove. We, for our part, cannot imagine for what class of students such a book is written, and know not whether to wonder more at the audacity of an author who attempts to compress so vast a subject within 280 pages, or at the fatuity of the reader who hopes to learn it under these conditions. The book comprises an introduction and 14 chapters, whose respective subjects are:—The Forge, the Foundry, Hand and Machine Tools, Manipulation, Mechanics, the Physical Basis of the Steam Engine, Steam Engines, Steam Engine Governors and Regulators, Details of Steam Engines, Pump Valves, Injectors, &c., Boilers and Furnaces, Millwork, Gearing and Machinery, Continuous Railway Brakes, and Strength of Materials. The vast range of subjects herein included is as noticeable as is the utter want of balance in this ambitious programme. Very many of these chapters would require volumes for their adequate treatment, whilst others include an amount of detail that is surely superfluous in an elementary book. A few brief quotations from the introduction will suffice to show the quality of the work. Thus we learn that "pig-iron thus produced (from the blast furnace) is very impure, and requires to be remelted to become useful for constructional purposes;" whilst still more surprising is a statement respecting "the Bessemer process, by which the carbon is removed by blowing air through the molten metal in pear-shaped vessels, and thus burning out the carbon and some other impurities such as sulphur and phosphorus." The italics are our own. In view of such inaccuracies it is at least some satisfaction to learn from the preface that the author has eliminated the chapter on Metallurgy, which appeared in a previous edition.

*A Practical Manual of Minerals, Mines, and Mining.* By Professor H. S. Osborn, LL.D. (Philadelphia: Henry Carey Baird and Co.)

The average American is nothing if not ambitious, and the title of this work will strike most people as an example of that quality. Unfortunately, it is, however, an example like so many others, of "vaulting ambition which o'erleaps itself." Had Professor Osborn, who is already well known as a writer on metallurgical subjects, attempted less, the measure of his success would no doubt have been greater. The first part commences with skeleton sketch of some of the principles of mineralogy and some miscellaneous information respecting the blowpipe and some of the common laboratory reagents; then we have an account in brief of some of the more important of the useful minerals and metals, together with a little information about their chemical relations and metallurgical treatment. All this is exceedingly "scrappy," though the statements are, on the

whole, very correct; we have found but few errors of any importance in this part. It is curious that such an important mineral as coal should be conspicuous only by its absence; whilst pumice-stone, infusorial earth, and grindstones figure on the list of minerals. The information here given about the South African diamond fields needs much revision. It will be news to Kimberley men to hear that "the claims are about 300 yards square," and that the "richest stones are found in a bed of clay about 200 feet below the surface."

The second part is entitled "Mining Work and Architecture." It consists of a description of the various methods of opening up mines and of securing levels and shafts by timber and masonry. Here again the work partakes of the fragmentary nature that we noted in the first part; some of the descriptions of timbering are very good and well illustrated, though they remind us far more of what we have seen in mining textbooks than of what is found underground. Such difficult points as sinking in watery ground, quicksands, &c., are not even alluded to, so that even the very limited part of the subject of mining which is covered by the work is far from being complete.

At the same time, we repeat that actual mistakes are rare, and the student who may take this work up will have but little to unlearn, however much it may have to learn. We may add that it is well printed and illustrated, and is furnished with an excellent index.

*Poor's MANUAL FOR 1895.*—The reputation of this work rests upon so solid a foundation that, on the appearance of the new edition for 1895 it is hardly possible to say anything but that it equals in comprehensiveness, correctness, and clearness, all previous issues. The stupendous nature of the American railroad system is revealed in the fact that over 1400 large-sized, closely-printed pages of matter are occupied in presenting details of it, and the gigantic character of the work embodied in this compilation can at once be gathered. Hundreds of pages of tabulated statistics, all drawn from reliable and authoritative sources, represent an enormous amount of labour, going clearly to show that the honour of producing a publication of the kind is hardly earned. For the better elucidation of the text the work is accompanied by some 50 pages of clearly-printed maps. The publishers are Messrs. H. V. and H. W. Poor, of New York.

*MR. W. F. REGAN AND SOUTH AFRICA.*—Mr. W. F. Regan, who seems to be making a reputation for himself, is apparently a wonderfully energetic man. In our advertising columns we announce the results of his sales for the month of August, and these will at once convince the reader that they have been nothing less than remarkable. Large sales have been effected, principally in South Africa, New Zealand, and Australia. The majority of these came to London, whilst others have gone to Paris, Berlin, and Holland. The grand total purchase consideration amounted to the gratifying sum of £363,000. Mr. Regan also announces that before going to press he has sold 50 town lots at Bulawayo, 75 Salisbury, and 10 at Umtali, at prices averaging £60 each. He is about to publish a map of Bulawayo, which, he announces, will be ready for delivery on the 1st prox. He will also leave for Rhodesia, where he will be pleased to act for present and intending holders.

162, Ebury Street, London.

MR. JOSEPH GARLAND sailed for New York, en route to Mexico, on Wednesday, to examine and report upon a number of mining properties for Messrs. John Taylor and Sons.

—The interest due October 1 upon the debentures of the KOFFIFONTEIN MINES (LIMITED) will be paid at the company's bankers, the Union Bank of London (Limited), 2, Prince's Street, E.C., upon presentation of coupon No. 1 on and after that date.

JOHN L. M. FRASER,  
Consulting Mining Expert.

THE  
General  
Bar, &  
honour  
in the  
Judge,

## SIDE LIGHTS ON THE LAW:

Legal Jottings on Cases in the Courts, and on Questions affecting Mining, Railway, Financial, Industrial, and allied Interests.

BY A BARRISTER.

"ALL the capital has been subscribed." We may expect this to be a common form for the head of prospectuses which are advertised in future. Some few of the public will wonder why it is that the company which has already got all its capital should be advertising its prospectus. Others may say what a pity it is that we did not manage to get some of these shares before they were all subscribed. For such as these latter the prospectus will be intended. It is a new and adroit system of promotion which will not be long before it almost universally takes the place of the old humdrum style, for how nice it is to start with all your capital subscribed before you start! The anxious speculator or investor, whichever he terms himself, prefers to pay a premium for shares in a company fully subscribed than to subscribe for shares in a company in which it is not certain that more shares will be subscribed than such as will just justify the directors going to allotment. The fact, therefore, that we are likely to see the term, "All the capital has been subscribed," frequently in the immediate future, makes it well to bear in mind the possible or probable significance of the phrase.

BEFORE entering into the consideration of the meaning of this phrase I would remark that there are two classes of people specially interested in its meaning just at present. First, there are those who, reading these words in prospectuses, are, or may be, induced to come in and apply for shares, influenced by the fact that the whole capital has been subscribed. Secondly, there are those to whom frequently a statement of this kind may mean almost everything in this life—money, name, and reputation—I mean, of course, the directors, the persons who are put forward as responsible for the statement, and on whose names the public relies. This paper is interested as much in the one class as in the other, and it is my desire to point out to both their responsibility in this new departure in promoting by prospectuses issued after the whole capital has been subscribed, probably on the "simultaneous system," to which attention has already been directed in this paper.

FIRST, therefore, as to the public. It is well known that in 1889, the House of Lords, by its judgment in the celebrated case of Peck and Perry, exploded the doctrine which had been propounded then of recent years by the Equity Judges (namely, that persons were responsible for false statements made through want of care, notwithstanding they honestly believed them to be true), and reasserted the common law doctrine that to make a person responsible, the statement must be false, and have been made recklessly, and without caring whether it was true or false. The consequence was that in 1890, with the view of carrying the responsibility of directors somewhat further than for a practically wilful false statement made in a prospectus, "the Directors' Liability Act" was passed. That enacted "where, after the passing of this Act, a prospectus or notice invites persons to subscribe for shares in or debentures or debenture stock of a company, every person who is a director of the company at the time of the issue of the prospectus or notice, and every person who, having authorised such naming of him, is named in the prospectus or notice as a director of the company, or as having agreed to become a director of the company either immediately or after an interval of time, and every promoter of the company, and every person who authorised the issue of the prospectus or notice, shall be liable to pay compensation to all persons who shall subscribe for any shares, &c., on the faith of such prospectus," for any damage sustained by reason thereof unless the director or other person prove he had reasonable ground to believe, still did believe, the statement true, or unless it purports to be made on the authority of an expert. It is not a little remarkable that in the definition, although a promoter is defined to mean any person who was a party to the preparation of the prospectus, it does not include any person "by reason of his acting in a professional capacity for persons engaged in procuring the formation of the company." It will be remarked that this act only hit prospectuses or notices "inviting persons to subscribe" for shares, &c., and gives remedies only to persons who "subscribe" for shares, &c. Therefore, apparently, these prospectuses issued in pursuance of the simultaneous system where all the share capital is stated to be already subscribed a speculator or other person applying for shares would not be subscribing within the protection of this Act, but would be buying them from those who had subscribed. If this is the correct view, then the law which affects and governs the responsibility for the misrepresentations contained in prospectuses of this character is the law as it existed at the passing of the Directors' Liability Act 1890.

Now a word as to the responsibility for the phrase "all the shares are subscribed." In a case which was heard some time since before Mr. Justice Kekewich, it had been stated in a prospectus that £200,000 share capital had been subscribed, when the fact was it had been taken by the contractor in fully paid-up shares for the payment for the concession, and he held this statement was untrue. He said as to the word subscribed, "regarded by itself I should have thought that there was no doubt about the meaning of the word. If I had not been told that persons of business had a doubt about the matter I should not have thought it arguable. I should have thought it meant an agreement to take shares by means of a formal application, or otherwise; but, at any rate, an agreement under which there shall be a liability to pay."

LATER in the judgment the learned Judge goes on:—"To my mind the statement at the head of the prospectus says: To you who are reflecting whether you will apply for debentures in priority to share capital, who, therefore, wish to know what this sum is which is behind you, I say there is £200,000. That sum exists in the only way in which share capital exists. It has been issued to persons who, by subscribing for the same—underwriting it, to borrow a mercantile expression—have rendered themselves liable to pay the amount when required." He proceeds then, to point out, there is all the difference in the world between the shares being taken as fully-paid and payment in cash. First, a contractor accepts less cash than shares; secondly, cash is a guarantee that works will be proceeded with; thirdly, the subscription of the whole share capital predicates confidence in the investing public which justifies confidence in others.

The appointment of Mr. Finlay to the office of Solicitor-General, while gratifying to Scotchmen is also popular at the Bar. Sir Robert Finlay has won his spurs by steady and honourable perseverance. Beyond the fact that he read in the Chambers of Mr. Day, who was destined to become a Judge, it is not known that he had any exceptional connections or opportunities but those which he made for himself.

His career has been one of steady progress. In unremitting attention to the work of his profession it possesses a likeness to that of Sir Edward Clarke, through whose refusal of the office he has now succeeded; at the same time it offers a no less remarkable and interesting contrast. Sir Robert, shortly after his call to the bar, got into certain amount of work through "devilling" at Westminster Hall. His "apprenticeship," passed in the Chambers of Mr. Justice Day, no doubt led to this. This opening, so obtained, he has steadily, persistently, and bravely followed up, never flinching or swerving to the right or to the left. By this means, and by virtue of his qualities of conciseness and directness, he has by degrees become recognised as one of the most necessary advisers and advocates in leading commercial business. Sir Edward Clarke, who has refused the Solicitor-Generalship, it is understood, on the ground that the recent Treasury minute restricts the law officers from private practice, on the other hand, started at the Surrey Sessions without even the opportunities of "devilling" for a successful advocate. For some years he steadily worked there, getting a good proportion of, but by no means a monopoly of, the business. He, however, became recognised among his peers as a man possessed of tact, and of the power of remarkable eloquence. After some years' plodding his progress seemed to hang, so much so, indeed, that it is believed that the moment was one of anxiety both to himself and friends who believed in him and wished him well. The reward of his steady work was to come. The opportunity was given him. In fact, a series of remarkable opportunities followed. He was engaged to defend in a case of murder of a sensational character. The case had stirred and interested the public mind—Edward Clarke's eloquence rose to the occasion. His speech was reported in full in the London papers. The beauty and poetry of his periods took the public taste. The tact and adroitness of the advocate satisfied their judgment, and within a few months his practice had jumped by leaps and bounds. It was not long after that he found it desirable to take silk, for which his style and manner was more suited. His subsequent success is well known to the public. With solicitors and the Bar he has gained a specially honourable reputation. He is, moreover, possessed of the courage of his own opinion, and those who know him best are willing to believe that his protest against the restriction on law officers' practice was intended by him as much in the interest of the Bar as of himself.

## REPORTS FROM THE MINES

### BRITISH MINES.

POLBERRY.—September 24: The sumpters are now engaged in driving east of the 55 fathom level, and taking down ground north and south of the shaft to prepare for the rock-drill. We hope to complete these preparations in about a fortnight from this date. The compressor will be ready to work and air pipes fixed in a few days. The 26 crosscut north produces a little tin, and is letting out more water. The 26 end on Pink lode is 3 feet wide, and is yielding a little tin and some good stones of copper ore.—(Signed) Charles Thomas, John Harper.

WEARDALE LEAD.—Report on Weardale Company's mines for week ending September 21: Grovesake. Rising to prove vein from the crosscut north from Armstrong's old rise, vein extremely poor, and abandoned for the present. Driving firestone drift west in south part of vein, vein a mixture of spar and rider, continues very poor. Rising to prove vein from end of Adamson's drift, vein 1½ feet wide, improved in ore, worth 12 cwt. per fathom. Crosscutting north from Adamson's drift to Green Cleugh vein; this crosscut has been started, is all in plate, good to drive. Groverake tribute ore for the week returned at 142 bings.—Bolburn. Stopes in north flats from Watt's level worth 40 and 24 cwt. per ton, in south flats worth 16 and 12 cwt. per fathom. Vein stopes worth 16 and 8 cwt. per fathom.—Greenaw's. Natrass Gill drift, Moses rise, no change, ground hard. Watson's drift, vein improving and looking better, still in the roof in 5 yards limestone, worth 8 cwt. per fathom. Low's drift, stopes worth 12, 12, 10, and 12 cwt. per fathom. Quarry level vein 4 feet wide of spar with some ore, worth 8 cwt. per fathom. Tribute ore for the week 6 bings.—Sedling. Driving 64 level east vein 3½ feet of spar and rider mixed with ore, end worth 16 cwt. per fathom. Stopes above 64 level east worth 14, 16, and 16 cwt. per fathom. Rising to 56 level, strong vein worth 16 cwt. per fathom. Stopes above 56 level worth 12 and 12 cwt. per fathom. Driving 64 level west, vein 2½ feet wide of plate, rider, and spar, and a little ore. Stopes above 64 level west worth 12 and 14 cwt. per ton. Driving 74 level east in plate under the scar limestone ore south side of the vein in plate, rather firm. Ore raised for the week 49 tons. Ore dressed for the week 26 tons. Ore and slag smelted for the week 88 tons, producing 45 tons of pig lead.

WEST KITTY.—September 26: The 94 fathom level driving west the lode is small, yielding stones of tin, but not to value. The 84 fathom level driving west the lode is worth £10 per fathom. The 72 fathom level driving west the lode is worth £6 per fathom. The 60 fathom level driving west the lode is worth £12 per fathom.—South section. The 60 fathom level driving east south of slide the lode is worth £12 per fathom. The No. 2 rise in back of this level is worth £9 per fathom. In driving west at the 60 fathom level south of slide the men are uncovering the lode. When last taken up lode was worth £8 per fathom. In driving east at the 50 fathom level the lode is worth £8 per fathom. In driving west at the 50 fathom level the lode is worth £6 per fathom. The stopes and tribute pitches continue to yield the usual quantity of tin. We are put to a disadvantage at the dressing-floors, owing to the long drought that we have been having. The men at Thomas's shaft sank 6 fathoms 2 feet 6 inches last month. This shaft is now down nearly 100 fathoms from surface. The men are now cutting flat at the 56 fathom level below the adit.—(Signed) Joel Hooper, John Williams.

WHEAL FRIENDLY.—St. Agnes, Cornwall, September 23: I beg to inform you that the shaft has been cut down to the 10 fathom level, and after the next fortnight I hope to be in a position to begin to sink.—(Signed) Charles Cole.

### COLONIAL, INDIAN, AND FOREIGN MINES.

ELKHORN.—Copy of Mr. C. A. Molson's Monthly Report for August: Mine. Ore Breaking Department.—550 feet level south. The vein is 2 feet wide and the value 54 ounces. The ore continues regular in the south end of the stope.—650 feet level south. Porphyry Stope. The vein is 4 feet wide and the value 28 ounces.—750 feet level south. Under No. 2 Stope. The vein is 3 feet wide and the value 47 ounces.—850 feet level north. The vein is 5 feet wide and the value 21 ounces.—950 feet level north. The vein is 7 feet wide and the value 40 ounces. Some oxidised lead ore is being obtained from this place.—South of the Shaft. Footwall Stope. The vein is 30 inches wide and the value 36 ounces.—1050 feet level north. The vein is 3 feet wide, and the value 26 ounces.—South of the shaft. North end. The vein averages 1 foot wide, and assays 48 ounces. The ore is becoming bunchy.—1150 feet level north. The vein is 18 inches wide, and the value 52 ounces. Some bunches of high grade smelting ore occur in the dry quartz.—1250 feet level north.—Underhand stope. The vein is 5 feet wide, and the value 30 ounces. Work has been stopped here temporarily, and a raise from the lower level is being put up to tap the bottom of the chute.—South of the shaft. The output of this stope for the month is all from the cleaning out of the old ground. The stope has been timbered up to protect the ore standing in the back of the 1350 feet.—1350 feet level south. Raise stope. The vein is 10 feet

wide, and the value 38 ounces.—Main stope. Centre. The vein is 18 feet wide, and the value 33 ounces. A small amount of shipping ore occurs in bunches on the hanging wall.—1450 feet level south. The vein is 5 feet wide, and the value 36 ounces. No work has been done north of the shaft on this level.—1550 feet level south. North end. The vein is 3 feet wide. The footwall portion is 1 foot wide, and assays 90 ounces and 12 per cent. lead; the balance of the vein is dry siliceous ore, assaying 37 ounces.—1650 feet level south. South Raise Stope. The vein is 30 inches wide and the value 40 ounces.—1750 feet level south. Intermediate Drift Stope. The vein is 2 feet 6 inches wide and the value 48 ounces.—1750 feet level north. The vein is 30 inches wide and the value 53 ounces.—South of the Shaft. Inside Stope. The vein is 4 feet wide and the value 30 ounces.—South Winze. 70 feet Stope. The vein is 3 feet wide and the value 26 ounces.—Prospecting department. 1650 feet level north. Previously reported 83 feet; advanced in August, 30' 85 feet; total length, September 1, 113' 85 feet. The ground showed no indications of value and the work was stopped.—1750 feet south winze. A level was run southerly for a distance of 60 feet from the bottom of the winze. No payable ore was developed here and the work has been stopped. The stoping from the winze may show the extension of the ore chute to be of value, and we can then extend the level in whichever direction appearances indicate the better value to lie.—Amount and source of ore hoisted, 550 feet level, 35 cars; 650 feet level, 42 cars; 850 feet level, 111 cars; 950 feet level, 49 cars; 1050 feet level, 153 cars; 1150 feet level, 42 cars; 1250 feet level, 558 cars; 1350 feet level, 601 cars; 1450 feet level, 192 cars; 1550 feet level 49 cars; 1650 feet level, 135 cars; 1750 feet level, 226 cars; total 2,193 cars, No. of tons, 1,171.—Milling Department. The mill made a steady run during the month, the time lost being for the replacement of castings, &c.—Table of Work performed. Ore on hand August 1, 118 tons; raised from the mine, 1,171 tons; less smelting ore, 17 tons; waste, 147 tons, 164 tons, 1,006 tons; add for salt, 176 tons; dry tons panned, 1,162 tons; pulp in the mill, 60 tons; rough ore in stock, 79 tons, equal 1,302 tons, 1,302 tons.—Table of mill work. Dry tons panned, 1162 tons; average assay value, 36 ounces; average percentage salt used, 14 per cent.; average value of tailings, 3 ounces; average percentage saved, 91 per cent.; number of Doré bars produced, 41; number of ounces fine silver, 41,603; number of ounces pure gold, 32; batteries in service 29 days; pans in service 30 days; estimated value of bullion shipped, \$27,025; excess on July shipment, \$104; actual returns from ore shipped, \$902 = \$28,031. Current expenses, including salaries, labour and supplies, &c., \$21,438. Balance, being profit for August (or at \$4.85 to £ sterling = £1360), \$6593.—Shipping ore. The shipments amounted to 17,230 tons and netted \$902 36, the average value being 52.37 per ton.—Surface Department: Fuel. The deliveries have been regular, and the quality of the wood is good.—Water. The supply is low but sufficient for our needs by the addition of some of the flow from the mine. The weather has been warm and the season very dry, but the hills are again covered with snow. The plant is running smoothly throughout.

GOLDEN SPUR.—The following letter, dated July 29, has been received from Mr. Montgomery, M.A., Government geologist, in reference to the future prospects of the Golden Spur Gold Mines:—"You will also have no doubt heard by cable of the striking of the New Golden Gate Central reef, containing payable gold at 1025 feet in their shaft, but as it is possible that some of the significance of the fact has not made itself apparent to you, I have thought it worth while to let you have my notion of what it means. The Central reef was cut in the adit, and the No. 2 and No. 6 levels, but was of no value; it is probably really part of the western reef, but if not both of them lie pretty close to one another, and are parallel in their dip to the Loane's and main reefs. Their course, however, is not parallel, for they run north-westerly right into the North Golden Gate (your property) and towards the Golden Spur, so that the new discovery immensely enhances the value of these properties. The North Gate should be gone on with as fast as possible now in view of the discovery. According to the latest reports the new reef is really good in the bottom of the shaft, and of course it is quite possible that the gold may go up to much higher levels, the work done on the line of reef at the upper levels being nothing at all further than cutting it through. The whole reef is practically untouched to surface, and there is much hope of gold being found in it for a long way up. I think myself that it is probable that the western and central reefs have come together where now cut in the shaft."

WENTWORTH EXTENSION.—Report dated August 17:—Main shaft. Carroll's No. 2 sunk 12 feet during week; total depth, 119 feet.

NEW SPES BONA.—The general manager of this property, Mr. Johnston, has long been of opinion that since the North reef is a payable body existing in the mines upon either side of him, it should also be found to exist in the Spes Bona under more or less similarly profitable conditions. There is no evidence in any part of the mine that any exploration has previously been made in search of this reef, and he has the credit of breaking into it in four places by means of crosscut work from the Main reef 1 fathom on the 3rd level. At a distance of 30 feet, or more to the west, the North reef has been struck, showing a thickness which varies from 12 to 15 inches, and an assay average of from 15 to 19 dwts. per ton. This is a decidedly promising discovery and will probably make a very great difference in the prospects of the mine. As to its extension above the 3rd level, nothing can be said with certainty, but there appears no reason to suppose that it will not be continuous right to the surface—a distance upon the incline of between 300 and 400 feet. Mr. Johnson is greatly impressed with the important results which may depend upon this find, and will doubtless continue to investigate it as much as possible. As to the other reefs, it must be admitted that things are looking distinctly better in depth. On the 3rd level the Main reef leader has an average thickness of about 8 inches, while on the 4th or 450 feet level the reef is increasing to from 14 inches to 3 feet, the value continuing good at the same time. The South reef is also improving in thickness to a notable extent, and shows a promising increase in value also. Development is going on as quickly as possible, but will now be accelerated owing to the increase in the drilling power from five to eight drills. A new compressor—first half Yates and Thom—to run 10 drills, has just been erected. The engines of this firm have achieved an excellent reputation upon the Rand, and this one at the Spes Bona is well up to the usual form, and has been very well fixed, apparently. An immediate economy of about 300 bags of coal per week will result from its use. There are about 60,000 tons of ore in sight now in the western mine, and 15,000 tons in the eastern or Angelo Mine. Their last ore is of excellent grade. The main work at present, of course, is development, although on the surface some improvements and additions are being made. A saving in the cost of boiler water to the extent of perhaps £100 per month is being obtained by the use of the mine water, the acid of which is neutralised by the addition of soda carb. in solution, applied automatically to the water as it enters the tank. The water, after its impregnation, is made to ascend a high tank from below, and by the time it reaches the upper level is pretty well entirely neutralised and free from sediment. The apparatus is very simple. It may be mentioned that the main shaft is now down to the 4th level on the incline, and is being timbered up to facilitate the use of skips. The development of the newly-trucked North reef will be watched with interest by all concerned, as it will enormously enhance the value of the property if it proves to be anything like what is expected of it. The case of the Spes Bona presents a striking analogy to that of the Jumbers.

An extraordinary general meeting of the shareholders in the WOLHUTER GOLD MINING COMPANY (LIMITED) will be held in Johannesburg on November 7 next, to consider a proposal to form a new company with a capital of £800,000, the new company to take over all assets and liabilities.

**ALMADA AND TIRITO.**—Report for the month ending Aug. 31  
Dios Padre. The 250 feet level driving north was extended 16 feet  
4 inches by three men. The lode is without ore at present, but  
continues to let out water.—Guadalupe. The sinking of No. 1 shaft  
was suspended at 153 feet deep, and the 150 crosscut west was  
driven 7 feet. The hanging wall of the lode was cut 6 feet from the  
shaft, and we are now driving through the lode which is composed  
almost entirely of silicate of copper and quartz. We have not yet  
ascertained the width of the lode, now can we form any estimate of  
the length of this bunch, but the results of samples taken and the  
general appearance of the lode lead us to hope that we are just  
entering a payable bunch of ore. The hanging-wall is well defined,  
fixed with a band of red clay, and the green ore in contact with  
this is rich, yielding from 165 to 270 ounces of silver per ton. Two  
samples taken to day from the end of the crosscut gave 45 ounces,  
and 96 ounces silver per ton. The lode, therefore, contains ore of  
good average grade and workable quantities. After cutting through  
this (*Europas*) lode we shall immediately drive north and south,  
and also continue the crosscut to the main lode, which, according to  
the dip at surface in the White cutting, should be in close proximity  
to the *Europas* at this point. The 150 level driving north of No. 2  
shaft has been extended 12·5 feet. The lode is massive and mineralised  
throughout, but the ore is too poor to pay. The total length of  
the 150 crosscut west of this shaft is 19 feet, and having cut  
water in the forebreast, it is possible that we are close to the main  
lode. The No. 3 shaft has been sunk 23·6 feet by four men, making  
the total depth 116·6 feet. The ground is fairly easy for sinking.  
The lode in the tunnel driving south is composed of a very hard  
quartz showing occasional stains of copper; 18·4 feet were driven  
during the month by four men.—Stopes. Very good grade ore has  
been returned during the month, and in paying quantities from  
above the tunnel, and the 13 and 24 fathom levels north of  
Bilvadera shaft.—(Signed) John Nute.

**ALBERT MINES SYNDICATE.**—The company have received  
the following telegram:—"Have cut a reef 4 feet wide. Vincent  
Block carrying gold."

**AUSTRALIAN BROKEN HILL CONSOLS.**—The mining  
manager reports by mail for the fortnight ended August 14:  
Block 96. 280 level east prospecting drive No. 4 rise. No. 1 rise off  
east drive driven 7 feet; total 47 feet. This rise has been con-  
tinued with No. 2 shaft, block 97, by which means this part of the  
mine is perfectly ventilated, and the men have resumed driving in  
the east drive. East drive driven 4 feet 6 inches, total 154 feet  
6 inches. North-east stopes driven 3 feet. North-west stope driven  
7 feet. The north-east stope not looking promising, the men have  
been transferred to stope in a north-west direction, the lode being  
small consisting of oxidised matrix and a small vein of iron. Rise  
near shaft driven 12 feet, total 49 feet. The lode here is widening  
and looking promising. 280 level west driven 17 feet 6 inches, total  
277 feet. Lode formation small, the gangue being clay and gossany  
material. Incline No. 6 level east driven 9 feet, total 66 feet. No  
change. Operations in this level have been suspended for the pre-  
sent, it having been decided to sink the incline deeper. Men are  
now engaged in making preparation for sinking. No. 4 level east  
No. 1 rise driven 7 feet, total 30 feet 6 inches. The lode formation  
is about 2 feet wide, carrying a vein of carbonate of iron and calcite  
on the footwall.—Diamond drill. Through an accident to No. 3 bore,  
and in consequence of No. 2 boiler having to be cleaned out, the  
drill has been shifted underground to prospect for another lode at  
the bottom of No. 6 rise 280 level east. No. 2 boiler has been cleaned.  
—Note. The quantity of rock mined during the fortnight was 2582  
cubic feet.

**BAILEY'S REWARD NO. 1 SOUTH.**—Coolgardie, W.A.,  
August 3. Main shaft, 170 feet level. In this level the drive has  
been extended 5 feet. The reef is looking very well, and has  
widened slightly during the last two days, though running a very  
irregular course. No gold visible. Total length of drive 34 feet.  
Reef 3 feet 6 inches wide in face.—120 feet level winze. In this level  
south of the main shaft sunk 3 feet for the week working one shift  
only. Total depth, 7 feet. Will have to change position of winze  
to east and west as the footwall is coming in rapidly, cutting the  
stone to the east. Fine gold seen in breaking the stone. 90 feet  
level. Started winze about 30 feet north of shaft, when the drive had  
passed through a nice patch of gold. Sank winze 3 feet with two  
men working one shift only. Lode 2 feet thick. Very nice gold  
seen in breaking down stone. No other underground work has been  
done.—Stone treated. We have crushed 117 tons for a yield of  
59 ounces. I hope next fortnight to have a much better crushing,  
as the stone from the two winzes will be put through the battery.—  
(Signed) Tom V. Browne, acting manager.

**BALAGHAT MYSORE.**—Captain J. Pryor, September 3: Ogle's  
shaft. The 270 feet level south has been driven 25 feet 8 inches, or  
162 feet 8 inches from the crosscut. The lode still carries quartz  
varying from 9 inches to 6 inches wide; the quality is a little better  
than last reported, being now worth from 3 to 4 dwt. per ton.—  
Tennant's shaft. This shaft has been sunk 16 feet 3 inches, or 83 feet  
9 inches below the 600 feet level. The ground is still of a very  
favourable character; it occasionally carries a little quartz, but as  
yet this is of a very low grade. The 500 feet level north has been  
driven 21 feet 9 inches, or 301 feet from the shaft. Up to within a  
few feet of the present end the lode sometimes carried a little quartz.  
We then intersected a small crossing (about 18 inches wide) which  
has evidently disordered the lode, and since then it has been unpro-  
ductive. Unless a decided improvement is shortly met with we pur-  
pose crosscutting further east to see whether a part of the lode is  
standing in this direction. At the crosscut west at the 420 feet level  
north we have driven a further distance of 17 feet 9 inches, or a total  
of 31 feet 9 inches on the branch referred to in my last. It con-  
tinues to yield a little quartz, but not sufficient to value. We have,  
therefore, suspended its driving, and again resumed the extension of  
the crosscut west.—Surface. The masons are making fairly good  
progress with the buildings necessary for the cyanide works, and we  
hope to get them sufficiently advanced to be enabled to start once  
with the erection of the plant on its arrival from England.

**BAYLEY'S REWARD CLAIM.**—Mining report, dated Coolgardie,  
August 3: I have to-day, according to instructions, stopped the  
battery and put off all surface hands in connection with it. The new  
tailings and sluice pits we have started, doing the work with the  
underground hands who could be spared. This work, and the  
necessary alterations for driving in the future with the oil-engine,  
now almost erected, will take us at least a fortnight, and, perhaps, a  
little longer. In the meantime all stoping has been discontinued,  
and only important work in the mine, such as driving at the 380  
feet level and the 50 feet south, is being carried on. On the lease (Everard's) eight men, the usual number, are kept  
going to fulfil the labour conditions, and they are working  
the stopes north and south 60 feet level of the air shaft.—  
Sylvester shaft. At the 380 feet level in the south drive we have  
driven for the week ending August 2 15 feet, making a total of 123  
feet from the crosscut. The country is hard and more settled, show-  
ing a few streaks of quartz in the face, the first seen since the break.  
At the 100 feet level and the 160 intermediate all stopes discontin-  
ued for the present whilst the battery is stopped.—Gordon shaft.  
The 50 feet level south drive driven for the week 4 feet, making a  
total of 198 feet, stone in face rather small, 18 inches to 2 feet, im-  
pregnated with iron, much improved during the last few days.  
Other workings at this level discontinued for the present.—Air  
shaft (Everard's). North stope breaking fair stone, reef 4 feet 6 inches  
wide.—South stope. Reef here gradually getting smaller as break is  
reached, now 18 inches wide, and very little more stone to come out.—  
Keating shaft. In this shaft at 30 feet I have continued the drive  
south, and it certainly looks a very promising lode, of a good solid  
formation, over 4 feet wide, and showing fine gold occasionally in  
the breaking.—Battery. We have crushed 410 tons for the fortnight  
ending August 3, but we are very much troubled all through with  
scarcity of water and very dirty stone being the cause of many stop-  
pages to allow the mud to settle.—Yield. I regret very much that  
the yield is so small, being only 200 ounces, making an average ex-  
traction of a trifle under half an ounce. The tailings assayed under  
2 dwt., showing that the fault was not in that direction. With  
the new pits we hope to do with less water, and to be able to crush  
more stone at the same time, as well as considerably reducing the

cost of keeping them clean.—Machinery. The oil-engine is now  
almost erected, and Mr. Ryan will give her a trial run by herself in  
the course of a day or two.—(Signed) Tom Browne, acting manager.

**BRITISH BROKEN HILL PROPRIETARY.**—Mining manager's  
report for the week ending August 14: Blackwood (No. 1) shaft,  
300 feet level. West crosscut lengthened 4 feet, total length from  
plat 8 feet; face in very hard country rock.—200 feet level. South-  
west drive down winze in No. 1 west crosscut was driven 9 feet, total  
76 feet; face in fair grade sulphide ore. We mined 23 tons sul-  
phides, averaging 19 per cent. lead, 26 per cent. zinc, and 15 ounces  
silver per ton. Have stopped work here for present, and are now  
working northwards from winze in a splendid face of sulphide ore.  
North drive down winze in western extension which was started off  
west crosscut was driven a distance of 40 feet, but has now come up  
against a hard wall. We mined 35 tons carbonate ore, averaging  
32 per cent. lead and 20 ounces silver per ton. We have suspended work  
here, and commenced a south drive in end of crosscut in order to  
follow wall around in this direction. Winze in long crosscut in  
western extension was sunk 6 feet, total 26 feet. Bottom now  
enters very fair sulphides. We broke 7 tons sulphides, averaging  
23 per cent. lead, 29 per cent. zinc, and 15 ounces silver per ton.—  
Howell (No. 2) shaft, 300 feet level. West crosscut extended 7 feet,  
making total length from plat 101 feet, face getting somewhat  
better for driving. 270 feet level. 20 feet was driven on south side  
of east crosscut from far north winze, and connection made with  
south drive from crosscut; 36 feet was also driven on north side of  
crosscut all through good sulphide ore of good lead value. We  
mined 40 tons sulphides, averaging 35 per cent. lead, 18 per cent.  
zinc, and 9 ounces silver per ton.—100 feet level. Are still fixing  
tracks and making a gangway around old stopes to plat.—Marsh  
(No. 6) shaft, 2nd level. Winze stopes are yielding the usual out-  
put of fair grade carbonate ore. We mined 52 tons carbonates,  
averaging 23 per cent. lead and 48 ounces silver per ton, and 2 tons  
20 per cent. and 18 ounces. The uprise in end of east crosscut down  
winze stopes was risen 23 feet on footwall, and connection made  
with south drive off No. 3 east crosscut, which has improved the  
ventilation.—Junction 300 level. Uprise over north-east drive was  
risen 6 feet, making total height 29 feet, roof very patchy. Are  
timbering portion of rise.—Ore shipments. No ore was forwarded  
from mine during the week; the following lot has been agreed from  
previous shipments shipped to Block 14 Company, Port Adelaide,  
viz., 63 tons net, containing 3720 ozs. silver and 15 tons lead. The  
week's assay very: carbonates from 16 to 44 per cent. lead and 9·8  
to 105·1 ounces silver per ton; sulphides from 5 to 47 per cent. lead,  
13·4 to 31 per cent. zinc, and 1 to 17·6 ounces silver per ton.

**CORTZESTROOM ESTATE.**—The secretary reports that he  
has received Captain Hodge's written report confirming his telegram,  
but the list of assays given is considered by the board to be dis-  
tinctly at variance therewith. A letter from Mr. Hampton, the  
resident engineer, has also been received giving results of assays  
from various parts of the property, varying from 1 dwt. 23 grains  
to 5 ounces 12 dwt. 9 grains. Mr. Hampton remarks:—"The  
Banker mine is being explored with very satisfactory results.  
I feel hopeful that this may develop into a valuable discovery, and  
is at present the result of careful examination and development.

**CHAFFERS.**—Mr. F. Bowes Scott, manager, reports under date  
August 20: I am engaging as many men as can be profitably em-  
ployed. The Chaffers shaft has been sunk about the centre of the  
block, and is down 89 feet. I purpose sinking to 100 feet, and then  
crosscutting to the lode, which can be drawn upon north and south,  
at the same time can put in a crosscutting to the eastern boundary  
of the block. In the present crosscutting 44 feet to the west winze,  
now 12 feet in depth, is being sunk on strong leader of ironstone  
and quartz, which yields fair colour to the pan. The character of  
the stone is similar to that in the Golden Horse Shoe reef, and I  
believe the leader referred to must be connected with that lode. In  
addition I am prospecting for suitable point to sink an underlay  
shaft on the northerly extension of the Chaffers lode—namely, close  
to the southern boundary of the Golden Horse Shoe property. Near  
the southern boundary of the Chaffers block—namely, contiguous  
to Hannan's Star Mine, a third shaft is being sunk by six men. I may  
say in consequence of the great activity of the Hannan district the  
demand for miners makes it difficult to get good men at short notice.  
I have altogether 23 men, and am vigorously opening up the mine.

**CRESCENT GOLD.**—Superintendent's report for fortnight end-  
ing August 18: Crescent mine, South tunnel towards main shoot  
advanced 34 feet, total 142 feet. The ground, which continues to  
carry veinlets of quartz, has become somewhat harder. Drive  
north of shallow tunnel towards north shoot extended 24 feet,  
total 131 feet. A little gold is being obtained in this drive, and we  
shall soon crosscut towards footwall in order to intersect the  
main ore body. Drive south of old tunnel advanced 29 feet, total  
136 feet. Only "colours" of gold have as yet been met with. This  
tunnel is being extended to the western side of hill in order to  
explore the ground, and also to promote ventilation. It has ad-  
vanced 12 feet, making a total length of 114 feet.—Orlando Mine.  
The deep tunnel has advanced 12 feet, total 40 feet. The ground  
has become very hard, and the contractors are making slow progress.—  
Victory Mine. Negotiations for the purchase of this mine, which  
is being extended to the western side of hill in order to explore the  
ground, and also to promote ventilation. It has advanced 12 feet,  
making a total length of 114 feet.—Orlando Mine. The deep tunnel has  
advanced 12 feet, total 40 feet. The ground has become very hard, and  
the contractors are making slow progress.—Victory Mine. Negotiations  
for the purchase of this mine, which is being extended to the western  
side of hill in order to explore the ground, and also to promote  
ventilation. It has advanced 12 feet, making a total length of 114 feet.—  
Orlando Mine. The deep tunnel has advanced 12 feet, total 40 feet.

**GWANDA (RHODESIA).**—Letter from Mr. J. H. Hirschler,  
dated Bulawayo, August 8:—Knapp claims. I have been nearly a  
week inspecting these properties. They are, indeed, a very well-  
selected lot, with runs of old workings and a very good-looking  
quartz on the dump. Facilities for further working are, in most  
cases, great, and I expect that very fine ore bodies will be opened  
shortly. Work has already been started by the contractor on three  
properties, viz., one shaft on the Long John No. 2, one shaft on the  
Lady Reef, two shafts on the Untchabese. These shafts at the  
time I left were still in the old workings, and from the width of the  
old stopes one may expect fairly large bodies. These three properties  
are within a few miles from each other, and can be easily  
superintended by one contractor. About 18 or 20 miles west, at the  
junction of the Malame and Tuli rivers, is the Malame Reef (25  
claims). Work proceeding at present. About 2½ miles from these  
claims is the Tuli River Reef (35 claims). They are situated on the  
west bank of the Tuli river, about one mile from the river, which is  
a very fine, broad stream, with plenty of water, even now. I consider  
this property the most important of Knapp's claims. There is  
at least a run of 15 claims of continuous old workings, some of  
considerable depth; and if this should be, as it most likely is, an  
indication for the extent of the chute, then, indeed, we may expect  
some very good developments. I returned to camp on Tuesday last  
in order to engage some reliable contractors. I only succeeded in  
this on Saturday, and contracted for the present for two new shafts  
up to a possible depth of 100 feet, and the continuation of the  
existing shaft to eventually the same depth. I will return there to-  
morrow, and point out to the contractor where to sink. By the  
time Mr. H. B. Marshall comes there I trust one or the other reef  
will be exposed and prove satisfactory.

**HARMONY.**—Mr. Proctor left Johannesburg for Leydenorp on  
September 20, with the intention of travelling over the farms in  
that district with Mr. Jones, the sub-manager, with the object of  
organising the prospecting operations on the Low Country farms.  
Under date August 20 the general manager writes respecting the  
Pietersburg farms, that with regard to Rietfontein:—"This farm,  
as you will see on reference to the map, is situated in the heart of  
the gold-bearing district here, and will be well worthy of attention."

**HANNAN'S BROWNHILL.**—The following report has been re-  
ceived from the manager at the mine, dated Hannan's, W.A.,  
August 12: For the fortnight ending August 10 I beg to report as  
follows:—No. 3 winze sunk 14 feet, total 63 feet. Ore assays  
14 ounces 2 dwt. 5 grains. No. 2 south driven 14 feet, total 70 feet  
wide. Lode assaying 9 ounces 8 dwt. 2 grains per ton for a width

of 6 feet; hanging-wall not yet reached. No. 1 north poor and  
hard, assaying 2 dwt. Various crosscuts 31 feet; nothing of im-  
portance cut. In the mill construction the carpenters are still  
The foundations for the pit-head have been commenced.—(Signed)  
R. A. Varden, manager.

**MYSORE GOLD.**—B. Hancock, September 3. Mining operations  
for the fortnight ending September 2:—Rowse's shaft, 1400 feet  
level north of crosscut west. The rise in the back of this level has  
been put up 12 feet, making a total height of 57 feet. The lode is  
2 feet wide, assaying 1 ounce 7 dwt. 10 grains.—1460 feet level  
north of sump winze. This level has been driven 29 feet, making  
total distance driven of 366 feet. The lode is 4 feet wide, assaying  
1 ounce 2 dwt. 4 grains. The rise in the back of this level has been  
put up 9 feet, making a total height of 25 feet. The lode is 4 feet  
wide, assaying 9 dwt. 18 grains.—1460 feet level south of sump  
winze. Driving south from the bottom of the south winze driven  
25 feet, making a total distance driven of 162 feet; there is nothing  
here to report.—1360 feet level south of crosscut. There are two  
stopes in the back of this level, the average width of the lode being  
1 foot, giving an average assay of 13 dwt. 16 grains.—1360 feet  
level north of crosscut. The winze in the bottom of this level has  
been sunk 13 feet, making a total depth of 51 feet. The lode is  
2 feet wide, assaying 5 dwt. 5 grains. The lode in the stopes in the  
back of this level is 2 feet wide, assaying 1 dwt. 23 grains.—1360 feet  
level north of sump winze. This level has been driven 20 feet  
making a total distance driven of 218 feet. The lode is 2 feet  
6 inches wide, assaying 6 dwt. 12 grains.—1260 feet level south of  
sump winze. The rise in the back of this level has been put up  
11 feet, making a total height of 30 feet. The lode is 4 feet, assaying  
7 dwt. 3 grains.—1260 feet level north north-east. This level has  
been driven 16 feet, making a total distance driven of 862 feet.  
There are nine stopes in this level, the average width of the lode being  
3 feet, giving an average assay of 12 dwt. 9 grains.—1260 feet level  
south. This level has been driven 15 feet, making a total distance  
driven of 138 feet 10 inches. The lode is 6 inches wide, assaying  
7 dwt. 3 grains. There are two stopes in the back of this level,  
the average width of the lode being 3 feet 6 inches, giving an  
average assay of 1 ounce 2 dwt. 4 grains.—1160 feet level north  
north-east. This level has been driven 22 feet, making a total distance  
driven of 607 feet 6 inches.—1160 feet level south. This level has  
been driven 23 feet 6 inches, making a total distance driven of  
551 feet 6 inches. The lode is 2 feet 6 inches wide, assaying 6 dwt.  
12 grains. The rise in the back of this level has been put up 15  
feet, making a total height of 33 feet. The lode is 1 foot wide,  
assaying 6 dwt. 12 grains. There are four stopes in this level, the  
average width of the lode being 1 foot 9 inches, giving an average  
assay of 1 ounce 3 grains.—North of the crosscut east. The driving  
of this has been temporarily suspended. The lode in the stopes in the  
back of this level is 2 feet wide, assaying 1 ounce 4 dwt. 19  
grains.—South of the crosscut east. The driving of this has been  
temporarily suspended.—1060 feet level north-east. This level has  
been driven 3 feet, making a total distance driven of 703 feet.—  
1060 feet level north of No. 2 crosscut. This end has been driven  
22 feet 6 inches, making a total distance driven of 61 feet. The  
lode is 3 feet wide, assaying 1 ounce 14 dwt. 6 grains. We have  
started to sink a winze in the bottom at the end of the crosscut,  
which has been sunk 11 feet 6 inches. The lode is 5 feet wide,  
assaying 1 ounce 13 dwt. 10 grains. The lode in the stopes in the  
bottom of this level has been sunk 11 feet, making a total  
depth of 81 feet 6 inches. The lode is 1 foot 6 inches wide, assaying  
1 ounce 21 grains. There are three stopes in the back of this level,  
the average width of the lode being 3 feet 8 inches, giving an  
average assay of 1 ounce 17 grains.—780 feet level north. The lode in  
the stopes in the back of this level is 2 feet wide, assaying 16 dwt.  
7 grains.—780 feet level north on new chute. There are eight stopes  
in this level, the average width of the lode being 3 feet, giving an  
average assay of 16 dwt. 17 grains.—620 feet level north of crosscut.  
The lode in the stopes in the bottom of this level is 2 feet wide,  
assaying 1 ounce 7 dwt. 10 grains.—620 feet level south of crosscut.  
The lode in the stopes in the back of this level is 2 feet wide, assaying  
13 dwt. 1 grain.—Driving south on the branch in the 620 cross-  
cut east. This end has been driven 1 foot, making a total distance  
driven of 58 feet 6 inches. The lode is 6 inches wide, assaying  
4 dwt. 13 grains.—Crocker's shaft, crosscut west at the 890. This  
end has been driven 9 feet 6 inches, making a total distance driven  
of 45 feet, and holed to the 890 feet level north of crosscut. The  
machine has now been put to drive north from the shaft for a plat.  
Driven 17 feet 6 inches.—Driving north at the 780 for plat. This  
has been driven 8 feet 6 inches, making a total distance driven of  
35 feet 6 inches, and completed.—236 feet level north. The lode in  
the stopes in the back of this level is 2 feet wide, assaying 1 ounce 14  
dwt. 23 grains.—236 feet level south of crosscut. This level has been  
driven 21 feet 6 inches, making a total distance driven of 457 feet 6  
inches. The lode is 3 feet wide, assaying 1 ounce 12 dwt. 16 grains.  
The winze in the bottom of this level has been sunk 11 feet, making a  
total depth of 81 feet 6 inches. The lode is 1 foot 6 inches wide, assaying  
1 ounce 21 grains. There are three stopes in the back of this level,  
the average width of the lode being 3 feet 8 inches, giving an  
average assay of 1 ounce 17 grains.—780 feet level north. The lode in  
the stopes in the back of this level is 2 feet wide, assaying 16 dwt.  
7 grains.—780 feet level north on new chute. There are eight stopes  
in this level, the average width of the lode being 3 feet 8 inches, giving an  
average assay of 16 dwt. 17 grains.—620 feet level north of crosscut.  
The lode in the stopes in the bottom of this level is 2 feet wide,  
assaying 1 ounce 12 dwt. 10 grains. The lode in the stopes in the  
bottom of this level has been sunk 11 feet, making a total  
depth of 457 feet 6 inches. The lode is 3 feet wide, assaying 1 ounce 12  
dwt. 16 grains. The lode in the stopes in the back of this level is 2 feet wide,  
assaying 1 ounce 12 dwt. 10 grains. The lode in the stopes in the  
bottom of this level has been sunk 11 feet, making a total  
depth of 457 feet 6 inches. The lode is 3 feet wide, assaying 1 ounce 12  
dwt. 16 grains. The lode in the stopes in

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**MOUNT LYELL.**—Copy of mine manager's report for week ending July 31: Surface prospecting shaft, hanging-wall. The shaft has been sunk 5 feet, total 82 feet. Following the pyrites wall, sinking in schist and iron, which give encouraging assays.—No. 2 crosscut, north drive, No. 3 tunnel. The crosscut has been driven 2 feet, total 21 feet. The pyrites are very hard, but are improving in value.—South drive, No. 3 tunnel. The drive has been advanced 7 feet, total 406 feet. There is no change.—North drive, Indicator winze, the drive has been advanced 6 feet, total 61 feet. The pyrites wall has made a turn to the left, which has delayed progress.—North drive, No. 4 tunnel. The contractors have driven 18 inches, total 184 feet 6 inches. No change.—South drive, No. 4 tunnel. The drive has been advanced 10 feet, total 202 feet.—No. 2 winze, 50 feet level, engine shaft, No. 4 tunnel. The winze has been sunk 3 feet, total 21 feet. The pyrites wall is running very flat.—Engine shaft, No. 4 tunnel. The timbering and centreing of the shaft has been completed. The men are now engaged in putting in the ladderway.—No. 5 tunnel. The contractors have driven 3 feet 6 inches, total 1018 feet 6 inches. Country hard conglomerate.—Progress report for week ending July 31: Haulage line. Bank engine completed and trial runs very satisfactory. Cable and rollers laid ready for plate-laying; waiting for injector. Earthworks will be completed close to No. 4 tunnel this week.—Smelter site. Retaining wall and sheet piling in full progress. Carpenters commenced on building.—Converter site. Excavation making good progress. Brick plant, sawmill, and lime kiln plants running full time.—Copy of mine manager's report for week ending August 7: Surface prospecting shaft, hanging-wall. The shaft has been sunk 7 feet, total 89 feet. There is no material change to note.—No. 2 crosscut, north drive, No. 3 tunnel. The crosscut has been driven 2 feet, total 23 feet. The pyrites are still very hard.—South drive, No. 3 tunnel. The face has been advanced 7 feet, total 413 feet. The ground is somewhat easier.—North drive, Indicator winze. The drive has been advanced 6 feet, total 67 feet. The rock has been much harder than usual.—North drive, No. 4 tunnel. The contractors have driven 3 feet, total 187 feet 6 inches. Ground easier.—South drive, No. 4 tunnel. The drive has been advanced 8 feet, total 210 feet. The driving has been in hard baryta rock, which is now apparently giving place to softer metal; some good ore has been seen along the pyrites wall.—No. 2 winze, south drive, 50 feet level, engine shaft. The winze has been sunk 3 feet, total 24 feet in fair grade pyrites. The auriferous schist vein is thin but gives good assays.—Engine shaft. The ladderway has been put in from 100 feet level to the bottom, pipes put in to conduct the water down, and the shaft thoroughly overhauled and put in good repair from top to bottom.—No. 5 tunnel. The contractors have driven 4 feet for the week, total 1052 feet 6 inches. The face is all in quartz, showing specular iron.—Progress report for week ending August 9. Haulage line. Bank engine completed, platelaying and ballasting in progress for 16 chains. Everything working smoothly and well, and expect to complete to bank engine by end of next week.—Smelter site. Masons and bricklayers busily engaged in retaining walls. Sheet piling making good progress. Carpenters engaged framing bin timber. Trestle work on smelter tram to bin approaches completed.—Converter site. Excavation making good progress.—Brick plant. New engine and boiler in position, and two new 20,000 kilns completed. Murdoch arrived, and expect plant early next week, and will then complete alterations. New shed ready for sawmill at Conglomerate creek. Brick plant, sawmill, and smelter working full time. Weather good.

**mysore WEST AND mysore-WYNAAD CONSOLIDATED.**—Tank block. The mining manager, Mr. P. Bosworth-Smith, reports by mail for the month of August as follows:—South shaft. The new plunger bottom has been lowered into position at the 450, and a large cistern put in there. The old pole has been removed from the 354, and the new work joined up. The bottom plunger is working well, throwing the water from the 450 to the cistern at the 200 (the bottom of downright shaft). The old bucket lift has been removed, and a new working barrel and door-piece is now working in bottom of shaft. We have resumed sinking (August 31), and as all the water has been taken up at the 450, and as there is now but little inflow at the bottom of the shaft, we should make good progress in sinking. The 450 level north has been driven to a distance of 338 feet, making a progress of 63 feet 6 inches for the month. The lode in the end carries 2 feet 6 inches of quartz, worth 3 dwt. per ton. 450 level north No. 2 rise has been carried up a distance of 36 feet 9 inches, progress 36 feet 9 inches. Lode is carrying 2 feet of quartz, worth 2 ounces 4 dwts. Intermediate level north driven to a distance of 104 feet, making a progress of 48 feet. Lode 2 feet wide, and worth 12 dwts. per ton. We are starting a vertical winze from this level to hole into 450 crosscut from shaft just above the hopper. We shall thus be able to shoot staff from the stopes in the back of the intermediate level direct into the hopper at 450 level. Intermediate south rise was carried up to 51 feet 6 inches, and there stopped, as the quartz was broken up, and the lode getting into the pitch that we found in south end of 400 level.—The Mill. This was stopped for repairs from 1st inst., and was started on that date. On the 11th inst. the cam shaft broke and stopped the mill working until the 24th inst. During this time we had a new cam shaft made, new keyways cut in cam, and new pillar block cast and lined. The new shaft is now working well. Consequent on the mill running less than half the month the returns are as follows:—Quartz crushed 195 tons giving 104 ounces bar gold.

**mysore REEFS (Kangondy).**—Fortnightly report of Captain M. Scantlebury, dated September 3; Underlie shaft. The 125 feet level north has been extended 13 feet 6 inches, now 16 feet from shaft. The quartz is 2 feet wide, and worth 1 ounce 12 dwts. of gold to the ton. 426 feet level south has been advanced 12 feet 6 inches, now 14 feet 9 inches from shaft. The lode is 1 foot 9 inches wide, composed of quartz, pyrite, and schist, assaying 1 ounce 6 dwts. of gold to the ton. Winzes below the 325 feet level have been sunk 7 feet, now 60 feet below the level. The lode is 3 feet wide, and worth 2 ounces 5 dwts. of gold to the ton.—Stopes in bottom, 325 feet level. The quartz shows an average width of 18 inches, and is worth 1 ounce 4 dwts. of gold per ton. 325 feet level north has been extended 16 feet 6 inches, now 234 feet 6 inches from shaft. The quartz is 1 foot 6 inches wide, assayng 6 dwts. 12 grains of gold to the ton.—Vertical shaft. The winze below the 260 feet level north has been sunk 6 feet 6 inches, now 46 feet below the level. The lode is 4 feet wide, assaying 1 ounce 12 dwts. of gold to the ton. Rise above the 260 feet level has been put up 2 feet, now 14 feet 6 inches above the level, and communicated with the winze below the 200 feet level. Winze below the 200 feet level has been sunk 5 feet 6 inches, now 52 feet below the level, and holed to the rise above 260 feet level.—Stopes in back 260 feet level. The quartz is 2 feet wide, assaying 6 dwts. of gold to the ton. South trial shaft has been sunk 6 feet, now 47 feet from surface. The quartz for the time is pinched and very small.—Health. This is fairly good.

**NINE REEFS.**—Superintendent's report for fortnight ending September 3:—Vyvyan's shaft. The stope in the bottom of the 220 feet level north of the shaft produces quartz of a width of 6 inches, and assays 1 ounce 15 dwts. 9 grains per ton. The quartz in the bottom of the 220 feet level south continues from 6 to 8 inches wide, but it is not rich as usual, this week's assay value being 1 ounce 8 dwts. 19 grains of gold per ton. The stope in the back of this level yield quartz of from 8 inches to 1 foot wide, and assay 1 ounce 14 dwts. per ton. The stope in the bottom of the 145 feet level north produces quartz of a width of 9 inches, and of an assay value of 1 ounce 6 dwts. 4 grains per ton. The stope in the bottom and back of the 145 feet level south yield quartz of from 8 to 10 inches wide, and assay on an average 1 ounce 10 dwts. 20 grains per ton.—South shaft. This shaft has been sunk 9 feet, or 69 feet 6 inches below the 210 feet level. The lode is still of a promising character, and continues to yield small veins of quartz, this week's assay value of which is 5 dwts. 4 grains per ton.—Surface. I am pleased to say that three of the new boilers for the main shaft (on the Oriental lode) have arrived at the railway station and arrangements have been made for their conveyance to the mines. We expect their delivery here to-morrow, when we shall at once proceed to fit them in their respective positions and get them in working order as quickly as possible.

**NUNDYDROOG.**—Thomas Richards, September 3: Report for the fortnight ending August 31:—Taylor's shaft. The 1240 feet level south has been driven 13 feet 3 inches, total distance 70 feet 9 inches. Lode 1 foot 3 inches wide, of no assay value. The 1240 north has been driven 12 feet 3 inches, total distance 96 feet 3 inches. Lode 1 foot wide, assays 1 dwt. 21 grains. In the stope in the back of the 1000 north the lode is 2 feet wide, and assays 6 dwts. 6 grains. The 920 north has been driven 9 feet 6 inches, total distance 213 feet 6 inches. Lode 6 inches wide, assays 3 dwts. 18 grains. In the stope in the back of the 760 north the lode is 2 feet wide, and assays 7 dwts. 12 grains. In three stopes between the 600 and 520 levels north the lode averages 2 feet 4 inches in width, and 7 dwts. 12 grains in assay value. The lode in the stope in the back of the 520 north is 1 foot wide, and assays 5 dwts. In the stope in the back of the 300 north the lode is 1 foot wide, and assays 8 dwts. 18 grains. Main shaft has been sunk 5 feet, total depth 29 feet below the 1080 feet level. The lode consists of stringers of quartz of no assay value. The 1080 feet level north has been driven 13 feet 9 inches, total distance 197 feet 3 inches. Lode 1 foot wide, assays 1 ounce 7 dwts. 12 grains. A rise has been commenced in the back of this level on the north side of the crosscourse, and has reached a height of 9 feet. Lode 1 foot wide, assays 11 dwts. 6 grains. The 1000 north crosscut east has been extended 16 feet, total distance 24 feet. Some branches of quartz have been met with. The rise in the back of this level has been communicated with the 920 feet level north, and has laid open a valuable section of ore ground. In the stope in the back of the 920 south the lode is 4 feet wide, and assays 10 dwts. In two stopes in back of the 840 south the lode averages 4 feet in width, and 6 dwts. 6 grains in assay value. The 680 south from north crosscut east on main lode has been driven 2 feet 6 inches, total distance 33 feet 6 inches. Lode of no assay value, and driving has been discontinued. The 680 north on Kennedy's lode has been driven 10 feet 4 inches, total distance 86 feet 4 inches. The ground is so disordered here the rock-drill has been removed to resume the drivage north on main lode at this level. The 680 north crosscut west has been extended 8 feet 10 inches, total distance 192 feet 4 inches. No change. This crosscut has now been suspended. The 520 north crosscut west has been extended 16 feet, total distance 23 feet; no change. The crosscut east at this level has been driven 16 feet 3 inches, total distance 22 feet 9 inches. A branch of quartz assaying a trace of gold has been intersected here, and the drivage has been turned northward on its course. The 370 north has been driven 8 feet, total distance 22 feet. Lode 1 foot wide, assays a trace of gold. Kennedy's shaft has been sunk 9 feet, total depth 85 feet below the 600 feet level. The 600 south has been driven 19 feet 6 inches, total distance 174 feet 6 inches. Lode 1 foot wide, assays 3 ounces 1 dwt. 6 grains. The 600 north has been driven 14 feet, total distance 216 feet. Lode 6 inches wide, assays 8 dwts. 18 grains. The 520 south has been driven 22 feet 6 inches, total distance 663 feet. Lode 9 inches wide, of no assay value. The 520 north crosscut west has been extended 7 feet, total distance 95 feet; no change. This crosscut has now been suspended. The 440 south has been driven 17 feet 6 inches, total distance 1099 feet 6 inches. Lode disordered, and of no assay value. Lode in stope in bottom of 440 north (part carried) is 10 feet wide, and assays 17 dwts. 12 grains. In the stope in the back of the 440 south the lode is 4 feet wide, and assays 1 ounce 8 dwts. 18 grains. The 370 south has been driven 17 feet 6 inches, total distance 792 feet. Lode 1 foot 6 inches wide, assays 3 ounces 5 dwts. In the stope in the back of the 370 north the lode is 6 feet wide, assays 1 ounce 5 dwts. The 370 south from north crosscut west on the No. 2 lode has been driven 10 feet 6 inches. Lode of no assay value. The drive has been suspended. The 300 south has been driven 27 feet 6 inches, total distance 713 feet. Lode 9 inches wide, assays 6 dwts. 6 grains. In the stope in the back of this level the lode is 3 feet wide, and assays 8 dwts. 18 grains. The 230 south has been driven 17 feet 6 inches, total distance 48 feet. Lode 6 inches wide, assays 5 dwts. The 160 south has been driven 5 feet, total distance 394 feet 6 inches. Lode 3 inches wide, contains a trace of gold. In the stope in the back of the 160 north the lode is 4 feet wide, and assays 11 dwts. 6 grains. North shaft has been sunk 8 feet, total depth 75 feet below the 520 feet level. Lode 1 foot wide, assays a trace of gold.—Old mill samples. Pulp, 1 ounce 1 dwt. 6 grains; tailings, 3 dwt. 18 grains.—New mill samples. Pulp, 1 ounce 10 dwts; tailings, 4 dwts. 6 grains.

**RHODESIA.**—The following is extracted from a letter received from the local board in Johannesburg, dated August 20:—Criterion. The property consists of 40 claims. There are several shafts, one 31 feet deep, with an 8 feet drive at bottom, showing reef 3 feet thick, assays taken at 31 feet giving 2 ounces. Another shaft 50 feet vertical, showing reef at bottom 3 feet 6 inches wide, assaying 4 ounces 7 dwts. There are also several other shafts which have been put down, mostly with a view to cutting a reef which is supposed to lie further north, but so far, without result. The reef in the property dips southwards at about 45°, the strike of the reef being north-west and south-east. There are lots of old workings on the property from 14 to 20 feet deep. The claims are about 5000 feet above the sea level, with a good stream of water near. The shafts are 5 feet 6 inches by 3 feet, and are only prospecting shafts. There are lots of timber within 6 or 8 miles. Native labour is from 10s. to 20s. per month, but the natives are difficult to manage. There are 33 claims on the outcrop, representing 5000 feet, and Mr. Hirschler, in his letter dated August 8, says the reef in No. 2 shaft in the east drive on the 50 feet level opens out to nearly 3 feet, and pans exceedingly well. Other work was again delayed by short labour, but the contractor is now pushing ahead as quick as possible.

**SULTAN (Coolgardie).**—Under date August 19, the manager reports as follows: No. 2 shaft. The reef here continues to open up well. We have driven for week easterly 5 feet, making total from crosscut 17 feet, and westerly 6 feet, making total from crosscut 10 feet. We have now opened up the reef total length of 27 feet. The width maintained throughout is from 18 inches to 2 feet. I have had a sample of this reef assayed, the certificate of which I enclose to you. The sample was taken off the dump at the surface by myself. The assay is as follows: Fire assay 2 ounces 14 dwts. 19 grains; amalgamation assay 2 ounces 13 dwts. 12 grains.

**SUTHERLAND REEF.**—The following is extract from a letter dated August 29: You will be pleased to hear that we have struck the green rock, which is giving good results, and is very full of pyrites in the winze from 50 feet to 150 feet level east, as you will see by the assays as follows:—Assays. (1) 50 feet level winze, east of shaft, 3 dwts. 12 grains; (2) 50 feet level winze, east of shaft, 8 dwts.; (3) 50 feet level winze, east of shaft, 8 dwts.; (4) 150 feet level east stope, just below the above winze, 16 ounces 18 dwts.

**TRANSVAAL GOLD EXPLORATION AND LAND.**—Extracted from the general manager's advice, dated August 30:—Mining Thesis. The deposit continued strong on the high level in drive B, and the value was well maintained. The ore extracted for the week for dry crushing assayed 7 ounces 4 dwts. per ton. —R-mal of overburden. At time of writing the removal was more difficult, owing to the presence of large trap boulders.—Phi. The deposit struck in the vicinity of the Theta-Kameel's tunnel continued about 12 inches thick, and assayed 4 ounces 2 dwts. per ton. Work at Nu and Chi was being continued satisfactorily.—High level water race. The work of excavating the trough for the new race was being pushed forward; efforts were being made to obtain additional native labour.

**UNITED GOLD REEFS.**—Mr. Henry Wright, the company's manager at Coolgardie, writes as follows, under date August 20: I may say that the reefs are opening up well. In two shafts, the one on No. 6, and the Ritanita shaft, water has been struck, and there is a large amount of crushing stuff on the surface. The reefs can be cheaply worked, as they are of great width and similar to the Great Boulder, so that I should advise that plant be sent out as quickly as possible.

**VICTORY (Charters Towers).**—Mining manager's report for the fortnight ending August 10: No. 1 shaft. During the fortnight there has been hauled from Papuan reef 15 tons. There is at present 10 tons at surface. Since cleaning up at the mill work has been stopped on this reef. I have had the men engaged repairing and timbering underlay shaft, which will be completed to-day.—No. 2

shaft. The cross drive at the 320 feet level has been driven 4 feet. There is no change here to report. This drive has been stopped part of the time during the last fortnight owing to men being away sick. Above No. 1a there is a nice-looking reef going east. We are driving on it from the stopes; it appears to be making upwards. It has crossed from hanging to footwall. There is 20 inches of it showing in the face; it is carrying more mineral than any we have seen here for some time. There is very little stone left in the intermediates. We followed some stone from this drive, towards hanging-wall 25 feet, thinking it might lead on to something, but it has nearly died out. In the rise at bottom of underlay there is from 3 to 10 inches of reef; it keeps about the same, does not open out any wider; the quality is medium. In the winze in No. 7 level there is about 15 inches of reef where we are stoping on east side. The quality here is about the same. There has been hauled 55 tons for the fortnight. No. 3 shaft has been sunk by the contractors 40 feet for the fortnight; the present depth is 128 feet 6 inches.—Joseph Taylor, mining manager.

**YERRAKONDA.**—Fortnightly report of Captain M. Scantlebury, mine agent, dated September 3: Beresford's shaft. This shaft has been sunk 10 feet, now 97 feet 3 inches below the 300 feet level. The lode is 5 feet wide, composed chiefly of quartz and iron pyrite, assaying 2 dwts. 6 grains of gold to the ton. 300 feet level north has been advanced 8 feet 6 inches, now 164 feet 6 inches from shaft. The lode is disordered and of no value, much the same as it is in the level above; I have, therefore, suspended this. New engine shaft has been sunk 7 feet 6 inches, now 234 feet 6 inches from surface. South shaft has been sunk 7 feet, now 153 feet 6 inches from surface. The lode is 4 feet wide, 3 feet of which is solid quartz, assaying 3 dwts. 6 grains of gold to the ton. Prospect south shaft has been sunk 13 feet, now 65 feet 6 inches from surface. We are still in quartz, which is of low grade, assaying 1 dwt. 20 grains of gold to the ton.

**DE LAMAR.**—Copy of Captain J. W. Plummer's monthly report for August:—Mining, ore breaking department. Hamilton vein, 3rd level. Average width of vein 3 feet, assaying \$20.37 in gold and \$1.45 in silver, equal \$21.82 per ton.—77 feet vein, 4th level, intermediate stope, east. Average width of vein 4 feet, assaying \$19.31 in gold and \$2.62 in silver, equal \$22.43 per ton.—77 feet vein, 4th level, west. Average width of vein 3 feet, assaying \$26.35 in gold and \$1.56 in silver, equal \$27.91 per ton.—77 feet vein, 5th level. Average width of vein 2 feet, assaying \$17.35 in gold and \$1 in silver, equal \$18.35 per ton.—77 feet vein, 6th level. Average width of vein 4 feet, assaying \$16.75 in gold and \$3 in silver, equal \$19.75 per ton.—77 feet vein, 7th level. Average width of vein 5 feet 8 inches, assaying \$18.65 in gold and \$7 in silver, equal \$25.65 per ton.—77 feet vein, 8th level. Average width of vein 4 feet 6 inches, assaying \$14.75 in gold and \$7.85 in silver, equal \$22.60 per ton.—77 feet vein, 9th level. Average width of vein 4 feet, assaying \$14 in gold and \$10 in silver, equal \$24 per ton.—No. 5 vein, 5th level, new stope. Average width of vein 3 feet, assaying \$21 in gold and \$1.50 in silver, equal \$22.50 per ton.—No. 5 vein, 6th level. Average width of vein 2 feet assaying \$29 in gold and \$1 in silver, equal \$30 per ton.—No. 6 vein, 8th level. Average width of vein 2 feet 6 inches, assaying \$23.75 in gold and \$1.25 in silver, equal \$25 per ton.—No. 6 vein, 10th level. Average width of vein 2 feet, assaying \$24.50 in gold and \$1.25 in silver, equal \$25.75 per ton.—No. 7 vein, 7th level. Average width of vein 2 feet 5 inches, assaying \$25.50 in gold and \$1.50 in silver, equal \$27.50 per ton.—No. 7 vein, 8th level. Average width of vein 2 feet 4 inches, assaying \$24.50 in gold and \$1.50 in silver, equal \$26 per ton.—No. 7 vein, 10th level. Average width of vein 2 feet, assaying \$25.75 in gold and \$1.50 in silver, equal \$27.75 per ton.—No. 7 vein, 11th level. Average width of vein 2 feet 4 inches, assaying \$24.50 in gold and \$1.50 in silver, equal \$26.50 per ton.—No. 7 vein, 12th level. Average width of vein 2 feet 10 inches, assaying \$26.50 in gold and \$1.50 in silver, equal \$28 per ton.—No. 7 vein, 13th level. Average width of vein 2 feet 10 inches, assaying \$27.50 in gold and \$1.50 in silver, equal \$29 per ton.—No. 7 vein, 14th level. Average width of vein 2 feet 10 inches, assaying \$28.50 in gold and \$1.50 in silver, equal \$30 per ton.—No. 7 vein, 15th level. Average width of vein 2 feet 10 inches, assaying \$29.50 in gold and \$1.50 in silver, equal \$31 per ton.—No. 7 vein, 16th level. Average width of vein 2 feet 10 inches, assaying \$30.50 in gold and \$1.50 in silver, equal \$32 per ton.—No. 7 vein, 17th level. Average width of vein 2 feet 10 inches, assaying \$31.50 in gold and \$1.50 in silver, equal \$33 per ton.—No. 7 vein, 18th level. Average width of vein 2 feet 10 inches, assaying \$32.50 in gold and \$1.50 in silver, equal \$34 per ton.—No. 7 vein, 19th level. Average width of vein 2 feet 10 inches, assaying \$33.50 in gold and \$1.50 in silver, equal \$35 per ton.—No. 7 vein, 20th level. Average width of vein 2 feet 10 inches, assaying \$34.50 in gold and \$1.50 in silver, equal \$36 per ton.—No. 7 vein, 21st level. Average width of vein 2 feet 10 inches, assaying \$35.50 in gold and \$1.50 in silver, equal \$37 per ton.—No. 7 vein, 22nd level. Average width of vein 2 feet 10 inches, assaying \$36.50 in gold and \$1.50 in silver, equal \$38 per ton.—No. 7 vein, 23rd level. Average width of vein 2 feet 10 inches, assaying \$37.50 in gold and \$1.50 in silver, equal \$39 per ton.—No. 7 vein, 24th level. Average width of vein 2 feet 10 inches, assaying \$38.50 in gold and \$1.50 in silver, equal \$40 per ton.—No. 7 vein, 25th level. Total length 662 feet 6 inches; advanced for the month 80 feet 6 inches, total 335 feet. About 100 feet of this total length represent sand and gravel, which overlie the vein. During the month an adit was completed to the surface.—77 feet vein, 4th level, intermediate. This level has again been resumed and advanced for the month 24 feet 6 inches. The vein has averaged 2 feet wide, assaying \$21 in gold and \$7 in silver, equal \$23 per ton.—77 feet vein, 5th level, west. Reported length, 25 feet. Total length 667 feet 6 inches; advanced for the month 80 feet 6 inches, total 335 feet. The vein averages 3 feet wide, and is composed of quartz and small round-shaped pebbles of green porphyry and of low value. 77 feet vein, 10th level, footwall crosscut, advanced for the month 17 feet, average width of the vein 2 feet, assaying \$20 in gold and \$5 in silver, equal \$22 per ton. No. 5 vein, 5th level west advanced for the month 33 feet, average width of the vein is 2 feet 6 inches, assaying \$18 in gold and \$5 in silver, equal \$23 per ton. Reef crosscut advanced for the month 21 feet 9 inches. The porphyry is a little softer than usual. The face of the level is within a short distance of the reef itself if it maintains a vertical line. Summercamp tunnel advanced for the month 18 feet. Total length 371 feet. A small branch of quartz was cut during the month.—Milling department. The clean-up and general repairs consumed 12 hours on the first of the month.—Table of work performed for August:—Number of dry tons crushed, 3617.

SEPTEMBER 28, 1895.

## PROVINCIAL SHARE MARKETS.

## THE CORNISH MINE SHARE MARKET.

**M**R. SAMUEL JOHN DAVEY, Dealer in Cornish Mine Shares, Redruth, Cornwall, reports under date of September 26 (4 o'clock) as follows:—Business has been very quiet all the week in our market, and prices remain dull. There is nothing doing to-day. Following are quotations:—Blue Hills, 1s. 6d. to 2s. 6d.; Carn Brea, 1½ to 2s.; Dolcoath, 17s. 6d. to 18s. 6d.; Dolcoath (partly paid), 5s. to 6s.; East Pool, 4 to 4½; Killifreth, 7s. to 9s.; South Crofty, ½ to ½; South Wheal Frances, 1 to 1½; Tincroft, 6s. to 8s.; West Frances, 1 to 1½; West Kitty, 4 to 4½; Wheal Bassett, 2½ to 3s.; Wheal Grenville, 12s. to 13s.; Wheal Kitty (St. Agnes), ½ to ½; Polberro, 2 to 1.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (September 26) as follows:—Tin has been steady, and shown a firmer appearance throughout the week, but shares are without any improvement. The market continues dull and neglected. Closing prices:—Blue Hills, 2s. to 2s. 6d.; Carn Brea, 1½ to 2s.; Devon Consols, 2s. to 3s.; Dolcoath (fully paid), 17s. to 18s.; ditto (5s. paid), 5s. to 5s. 6d.; East Pool, 3½ to 4s.; Killifreth, 7s. 6d. to 8s. 6d.; Levant, 4 to 4½; Polberro, 17s. to 18s. 6d.; South Crofty, 7s. 6d. to 8s. 6d.; South Frances, 1 to 1½; Tincroft, 6s. to 6s. 6d.; West Frances, ½ to 1; West Kitty, 4 to 4½; Wheal Bassett, 2½ to 3s.; Wheal Grenville, 12s. to 13s.; Wheal Kitty, 7s. 6d. to 8s. 6d.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of September 26:—A dull market all the week, with very little business doing. Prices generally are lower, but there is not much disposition to do anything at present. Quotations herewith:—Blue Hills, 2s. to 4s.; Carn Brea, 1½ to 2s.; Dolcoath (fully paid), 17s. to 18s.; ditto (5s. paid), 5s. to 6s.; East Pool, 4 to 4½; Killifreth, 7s. to 9s.; Polberro, 2 to 2s.; South Crofty, ½ to ½; South Frances, 1 to 1½; Tincroft, 6s. to 6s. 6d.; West Frances, ½ to ½; West Kitty, 4 to 4½; Wheal Bassett, 2½ to 3s.; Wheal Grenville, 12s. to 13s.; Wheal Kitty, 7s. 6d. to 8s. 6d.

## MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write September 26 (noon):—Better prices are the feature of the week, notwithstanding the approach of and arrangement of account preceding a 19 days' account which latter is (or has been) considered a dull time. Home rails have improved generally, the exceptions (of which Lancashire and Yorkshire is most prominent with decline of ½) being few and small in amount. The same remarks apply to Yankees, advances being numerous, and declines few and small in amount. In Canadians, Trunks are but little altered, but Pacific are farther forward with rise of 8s. Mexican issues have lost ground all round, though showing some recovery latterly from lowest points of the week. There has been no very distinct daily changes, so there is no real reason to detail daily. Consols are unaltered on the week. Very little change in home corporation stocks, &c. Foreigners are lower for the most part, only Mexican Six per Cent. showing advance (½). The declines, whilst in large majority, are not great in amount. Changes in other sections of the market besides those named above will be found enumerated in full below.

CONSOLS.—Unchanged.

COLONIAL STOCKS, &c.—Higher: Cape of Good Hope Registered, 1.

CORPORATION STOCKS AND DEBENTURES.—Higher: Birmingham Three per Cent., 1 to 1½.—Lower: Liverpool Three and a-Half per Cent., ½.

FOREIGNERS.—Higher: Mexican Six per Cent., ½.—Lower: Argentine Five per Cent., 1; Italian Rentes, ½; Portuguese Three per Cent., ½; Spanish Four per Cent., ½; Uruguay Three and a-Half per Cent., ½.

BANKS.—Higher: Bank of Liverpool, ½; Manchester and Liverpool District, ½ to ½; Parr's and Alliance, ½; Union of Manchester, ½; W.D. and Manchester and Salford, ½ to ½.—Lower: Consolidated Bank, 1-16 to ½; Imperial Ottoman, ½.

INSURANCE.—Higher: Commercial Union, ½; Guardian, ½; Lancashire, ½ to 1-16; Lancashire and Yorkshire Accident, 1-16; Liverpool, London and Globe, ½; London and Lancashire, ½.—Lower: British and Foreign Marine, ½; Royal, ½; Thames and Mersey Marine, ½.

COAL, IRON, &c.—Higher: John Brown's, ½; Ebbw Vale, 1-16; Sheepbridge A, ½; Staveley A, 1; ditto C, 1½.—Lower: Bolckow Vaughan £20 paid, 1-16 to ½; ditto £12 paid, 8-16; Dorman Long, ½; Rhymney, 6d.

TELEGRAPHES AND TELEPHONES unchanged.

MINES.—Higher: Chartered, ½; Consolidated Gold Fields, ½; De Beers, ½ to ½; Londonderry, 1-16; Mysore, 5-16.—Lower: Rio Tinto, 1-16; Tharsis, ½.

BREWRIES.—Higher: Allsopp, ½ to 1; Farnham United, ½ to ½; Guinness's, 2s; Hardy's, 1½; Manchester Brewery, ½; Timplin's, ½.

MISCELLANEOUS.—Higher: Blackpool Tower, 1s.; Brunner Mond, ½; Burnley Paper, ½; Coat, ½ to ½; Eastman's, ½; Henry's Ordinary, 7-16; Lister's Ordinary, ½ to ½; ditto Preference, ½.—Lower: Bodega, ½ to ½; Manchester Palaces, ½; Ruston Proctor, ½ to ½; Northern Assets, 6d.; Canal Ordinary, 1-16 to ½; Rochdale Canal, 1.

LATER (4 p.m.)—Home rails firm to-day in tone, if no more. North Eastern Consols to the front with rise of ½. In Canadians, Trunk issues little looked after, but Pacific still in demand. Mexicans, too, are enquired for. Americans responded to the better figures from New York and maintained their improvement all day, without, however, making much, if any, advance in the early betterment.

SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (September 26), writes:—During the past week markets have been somewhat better in tone. The fortnightly settlement has been arranged at easier terms, and the new account, October 16, is a 19 days' settlement. Trade prospects are still considered good.

In shares of coal, iron, and steel companies prices are generally better, notwithstanding threatened labour troubles. Calderbank Steel are at 10s.; Marbella, 6s. 9d.; Niddrie, 4s. 6d.; and Steel Company of Scotland, 8s. 6d.

Shares of copper concerns have attracted more attention, and prices have an upward tendency. Arizona have improved from 5s. 6d. to 6s. 9d.; Tinto from 17s. 11-16 to 8s. 6d.; and Tharsis from 10s. to 10s. 6d. Central Chile are at 11s. 6d.

In shares of gold and silver mines there has been more business doing. Broken Hill advanced to 41s. 9d. on the announcement of a dividend and bonus of 2s. per share. African Recovery shares have been selling from 47s. 6d. to 49s. 9d. A dividend of 10 per cent. is payable on these shares on October 28, and the shareholders will get a pro rata allotment of 25,000 new shares at 3s. each. The principal dealings have been in Chartered, which advanced to 8s. Consolidated Gold Fields to 17s. and East Rand 12s. True Blue, W.A., shares are also in favour. Achilles are at 3s.; African Land, 4s. 3d.; Afriderk, 57s. 6d.; African Estate, 67s. 6d.; Balkia Land, 9s.; Big Blow, 32s. 6d.; Beaconsfield Diamond, 45s.; Big Golden Quarry, 2s. 10½d.; Cassel 17s. 9d.; Champion Reef, 92s. 6d.; Colenbrander, 11s. 3d. prem.; Clyde, 45s.; Caledonian, 4s. 9d.; Carat, 1s. 9d.; Coetzeestroom, 8s. 9d.; Day Dawn Block, 10s.; Elia, 10s.; Goadalcazar, 4s. 3d.; Guy Fawkes, 15s.; Golden Feather, 12s. 6d.; Great De Kaap, 6s. 6d.; Gold Fields of Mysore, 23s.; Gwanda, 15s. to 20s.; Gwelo, 5s. 3d.; Gold Fields of Mashonaland, 45s.; Henry Nourse, 7. 1. 16; Hammond Metabale, 9s. 6d.; Hauraki, 14s. 9d.; Jackson's, 2s. 6d.; Jumper, 8s.; Lindsays, 17s. 9d.; La Plata, 3s.; Langlaagte United, 62s. 6d.;

Lisbon, 11s.; Murchison Gold Fields, 9s. 6d.; Murchison New Chum, 28s. 9d.; Mysore Wynand, 16s. 3d.; Mount Margaret, 30s.; Mashona and Agency, 73s. 9d.; Montana, 11s.; Newfoundland Colonisation, 1s.; New Hauraki, 6s. 6d.; Nigel Deep, 82s. 6d.; Orion, 95s.; Orion Belt, 28s. 9d.; Plumas Kureka, 11s. 3d.; Pige's Peak, 12s. 6d.; Randt, 8s.; Randfontein, 81s. 6d.; Rand Roodepoort, 11s.; Sam's Wealth of Nations, 6s.; Sheba, 50s.; St. Augustine, 14s. 9d.; Southern Golden Hill, 15s.; Willoughby, 47s. 6d.; Wealth of Nations, 20s. prem.; United Rhodesia, 30s.; Wammer, 11s.; Walworth, 20s.; Wheeler Hill, 15s.; Willoughby, 47s. 6d.; Wealth of Nations, 20s. prem.; Yerakonda, 2s. 3d.; and Zimbabwe Exploring, 5s.

In shares of miscellaneous companies prices are generally better. Oil companies shares have improved on the strike of the shale miners being averted. Broxburn are at 13s. 16d. Pumperston 9s. Young's 53s. 9d. Aberfoyle Slate Quarry are at 8s.; Nobel's Explosives 15s. 11-16.

## EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of September 26:—Since last week's report, the railway market has been firm. Caledonian Deferred and North British have been changing a good deal, on rumours of possible labour difficulties in the coal and shipbuilding trades. Glasgow and South Western has risen from 113½ to 114, Highland from 115 to 116½, Great Northern from 110 to 111. Preferences have been in demand. In insurance shares, there has been an advance in Northern and Scottish Union A, but Caledonian shares have fallen from 29 to 27s. Business in banks has been dull. Clydesdale has risen from 19s. to 19s. 16d. In mining shares, Cowdenheath Coal have advanced from 17s. to 17s. Lothian Coal Preference from 7s. to 8s. Marbell's Iron from 63s. to 65s. 9d. Arizona Copper from 62s. 6d. to 63s., Broken Hill from 38s. to 41s. 3d., Arniston Coal shares have fallen from 26s. to 26s. Steel Company of Scotland from 93s. to 86s. 9d. In oil shares, Broxburn have changed from 13s. 7-16 to 13s. Dalmeny from 17s. 16 to 17s. Pumperston from 9s. to 9s. Young's from 52s. to 53s. 6d.

## TIN TICKETING.

A TICKETING for tin ores was held at Tabb's Hotel, Bedruth on Tuesday, September 24, with the following result:—

Mines.	Tons cwt.	Per ton.	Value.
East Pool A	20 0	38 10 0	770 0 0
do B	20 0	38 12 6	772 10 0
do No. 2	1 10	17 10 0	26 5 0
South Frances United No. I	17 0	38 5 0	650 5 0
do No. 1a	17 0	38 0 0	646 0 0
Wheal Grenville A	21 0	41 7 6	868 17 6
do B	13 0	40 10 0	626 10 0
Dolecat No. 1	15 0	39 15 0	636 0 0
do No. 1a	16 0	39 17 6	638 0 0
Wheal Bassett No. 1	16 0	41 5 0	660 0 0
do No. 1a	15 0	41 7 6	620 12 6
Tincroft	14 0	32 7 6	453 5 0
do	14 0	33 12 8	456 15 0
Carn Brea No. I	13 0	32 7 6	420 17 7
do No. 1a	12 0	31 17 6	882 10 0
do No. 2	1 10	24 7 6	36 11 3
Killifreth	14 0	35 12 6	498 15 0
West Kitty	13 0	41 0 0	533 0 0
West Frances	12 0	37 12 6	451 10 0
Phoenix United	9 0	39 15 0	357 15 0
do No. 2	2 10	34 7 6	85 18 9
South Condurrow	7 0	41 2 6	287 17 6

284 10

£10,779 15 0

AVERAGE PRICES PER TON.
July 16 ..... £36 9 9
July 30 ..... 37 17 7
August 13 ..... 37 1 0
August 27 ..... £37 13 0
September 10 ..... 37 10 10
September 24 ..... 37 17 10

THE GERMAN IRONFOUNDERS' ASSOCIATION.—The 27th annual meeting of the German Society of Ironfounders was held at Eisenach on the 14th inst. After the annual report was presented, Herr Hamm, of Vienna, read a paper on a new cupola furnace. It was decided that the next meeting of the society shall be held at Osnabrück.

## REGAN STILL AHEAD! UP - TO - DATE ENTERPRISE SECURES FIRST PLACE.

## AUGUST SALES.

## Sold to London.

## Transvaal Farms.

Lot 1 ..	4 Rustenburg
Lot 2 ..	10 Lydenburg
Lot 3 ..	17 Waterburg

## Rhodesian Farms.

Lot 1 ..	24 Mashonaland
Lot 2 ..	30 Matabeleland

## Transvaal Gold Claims.

Lot 1 ..	508 Reitfontein
Lot 2 ..	1000 Black Reef
Lot 3 ..	80 Elandsfontein

## Rhodesian Claims.

Lot 1 ..	120 Buluwayo
Lot 2 ..	70 Buluwayo
Lot 3 ..	10 Victoria
Lot 4 ..	20 Victoria
Lot 5 ..	60 Victoria
Lot 6 ..	56 Guelo

## Sold to Paris.

## New Zealand Farms.

Lot 1 ..	2 Canterbury
Lot 2 ..	11 Hartley Hill

## THE BANK OF AFRICA, LIMITED.

The 28th ordinary general meeting of the shareholders in the Bank of Africa (Limited) was held on Wednesday, at the Cannon-street Hotel, the chair being occupied by Mr. W. FLEMING BLAINE. The SECRETARY (Mr. R. G. Davis) read the notice convening the meeting.

The CHAIRMAN, in moving the adoption of the report and accounts, said that during the last few years they had repeatedly had reason to congratulate themselves upon the progress and prosperity of the Transvaal. The capital actually invested there, its market value, and the quantity of gold produced, had now reached figures of stupendous magnitude. The 44 principal companies, with their paid-up capital of £11,500,000, were now valued at £54,000,000, and comparing 1895 with the year preceding, it would be found that the average number of stamps at work was 2315, as against 2182, the tonnage of ore crushed 3,000,000, against 2,500,000, and the quantity of gold produced 2,164,000 ounces, against 1,790,000 ounces, its value being £7,500,000 sterling, against £6,300,000. These were striking and reassuring figures. Improved machinery and methods of extraction, and economy of working had produced their inevitable results, rendering the rich ore highly remunerative, and the poor ore capable of being worked at a substantial profit. Fresh discoveries were almost of weekly occurrence, and he was convinced that only a small portion of the many square miles of auriferous territory had so far been broken. While the increase in the value of South African shares was in a large degree due to speculation on the possibilities of the future, there could be no doubt that in a very large measure it rested upon the solid basis of conclusions drawn from the ascertained facts of the present. In view of these considerations they must proceed with great caution and circumspection, but there was no ground for alarm, or even apprehension. (Hear, hear.) With regard to the trade of the colony proper, agriculture had improved, and this was supplemented by a much higher price for the main staples of export, so that they had every reason to anticipate that the depression would be entirely swept away. The cause which had led to this improvement in trade conditions was commercially a sound and satisfactory one—viz., a much larger consumption of raw material, consequent upon an active and increasing demand for the manufactured article. The diamond mines were flourishing as heretofore. In Natal the native industry was making satisfactory progress, and her trade was showing the benefits of railway extension, while in Charterland they had a country giving great promise for the future. Gold discoveries were being made all over the country, the railway was being pushed on towards Bulawayo, and millions had been subscribed on this side of the water for developments upon the other. Thus they had in this territory all the elements of a second Transvaal—a country sure to attract an agricultural, mining, and mercantile community, and offering a vast field for enterprise. The results of all these favourable forces were reflected in the balance-sheet, which showed a net profit of £28,056, or £648 more than last year. This, with the amount brought forward, made £34,117 to be disposed of. A dividend at the rate of 10 per cent., and a bonus at the rate of 2 per cent., making together 12 per cent. per annum, would absorb £15,000. It was further proposed to transfer £7500 to the reserve fund, and to contribute £5000 to the pension fund, which would leave £6617 to be carried forward, a sum £556 more than last year. (Applause.) An examination of the other items of the balance-sheet could hardly do other than increase the satisfaction of the shareholders. It would be found that bills payable had increased by more than £10,000, and on the other side, bills receivable by more than £564,000, which was striking evidence as to the activity of business. Current accounts and other liabilities showed an increase of over £1,157,000, a most flattering testimony to the confidence reposed in the institution. Beyond this the number of the bank's customers had increased in most satisfactory manner, and their feeling of confidence was shown by their large balances on current account which, of course, did not carry interest. This accounted for the handsome reserve of over one million, which they had in hard cash, for with their numerous branches scattered all over the country, they were obliged to keep very strong in this item. Government, colonial, and other securities were less by £19,000, principally due to the fact that a Cape Government Treasury bill had matured and had not been renewed. Loans on security showed an increase of £453,000. These were, of course, selected with the greatest care. Bank premises, house, and office furniture were decreased by something like £3000. The greater activity of business had necessitated a larger expenditure upon telegrams and stationery. The salaries also were somewhat larger, owing to various increases, and he was sure the shareholders would agree that nothing could be more detrimental to the interests of the bank than to refuse recognition of faithful and successful services. (Applause.) The loyalty of the staff, was worthy of especial mention, and was very gratifying. He was glad to welcome Mr. Rochford Maguire to a seat on the board, and he felt sure that in him they had a colleague whose intimate knowledge of South African matters would be of assistance to the directors, and of great benefit to the bank. (Hear, hear.) In conclusion, he could only assure the shareholders that the board would endeavour in the future so to conduct the business of the bank as to merit a continuance of the confidence hitherto reposed in them. The Chairman concluded by moving the adoption of the report and accounts, and the declaration of a dividend of 10 per cent. and a bonus at the rate of 2 per cent. for the year.

Mr. WILLIAM YOUNG seconded the motion, which was put, and carried unanimously.

An extraordinary general meeting was subsequently held, at which the Chairman moved the following resolution:—

That the capital of the company be increased by the creation of 44,000 additional shares of £1 5s. each, and that such shares may be issued at such premium, on such terms, in such manner and at such times as the directors may think fit, but so that in addition to any premium at which the same may be issued, the sum of £25 5s. per share be called up thereon payable by such instalments as the directors may determine, such instalments to carry interest payable out of profits at the rate of 5 per cent. per annum from the date of their respective payments to the company until the 30th day of June, 1897, and so that such new shares when any premium is paid up thereon shall then forth rank in all respects pari passu with the existing shares of the company, wherein £1 5s. per share in respect of £1 5s. nominal amount of each share has been paid up, and so that of such shares 40,000 shares shall be offered in such manner as the directors think fit to those members whose names shall be on the register of members of the company on September 25, 1895, in the proportion of one new share for every existing share held by such members respectively, and so that any of the said new shares not accepted by the members in response to such offer, and the balance of 4000 shares may be disposed of as the directors think expedient.

The CHAIRMAN explained that this step was necessary in order to enable the bank to cope with the increase of business, and the motion, after some discussion, was carried:

The proceedings afterwards terminated with a vote of thanks to the Chairman.

HEAD'S DRIFT LAND.—An extraordinary general meeting of Head's Drift Land Company (Limited) was held on Monday, at Winchester House, E.C., for the purpose of confirming resolutions passed at a meeting on 4th inst. authorising an increase of capital from £60,000 to £75,000, by the creation of 25,000 new shares of £1 each.—Mr. C. J. Posno, the Chairman, in moving the adoption of the necessary resolutions, said that 5000 of the new shares would be issued to present shareholders at £2 each, or £1 premium. They had every reason to believe that they had succeeded in engaging the services of a man who would be thoroughly able to manage their saltpetre trade.—Mr. H. W. Webb seconded the motion for confirmation, which was agreed to unanimously.

"THE MINING STANDARD" OF SYDNEY.—This well-known paper has, we are informed, been purchased by Mr. F. Crichtley Parker, who intends issuing it at an early date as an illustrated journal. Until the necessary arrangements for its publication under the new conditions have been completed, the journal will appear as heretofore.

## MINING IN CORNWALL

## AND DEVON:

## NOTES ON MINING IN THE WEST.

(FROM OUR SPECIAL CORRESPONDENT.)

THE mineral statistics for 1894, which have just been published, show clearly how hard the Western mining industry has been hit by the depression which prevailed throughout last year, and which is, unfortunately, still with us. There are still 56 miners in Cornwall which produce tin, but some of these are mere "scratches," where the working staff does not amount to more than the proverbial "two men and a boy." Dolcoath, Carn Brea, Wheal Greveille, East Pool, Tincroft, South Frances, and Levant—these are the largest producers, the output of none of the others exceeding 500 tons in the 12 months. The total yield of the county last year was 12,910 tons, by far the greater proportion of which must have been raised at considerable loss. The falling-off in the amount of ore raised as compared with the preceding year was not more than 500 tons, but the difference in the total sum realised was over £150,000, the average price being £37 15s. 3d. compared with £46 10s. 9d. As it is a common-place among the mining community that the industry cannot be made profitable in Cornwall with black tin much below £60 per ton, it is obvious how urgently a rise in the price of the metal is required.

COPPER mining has now dwindled down to very small proportions. In 1863 the production of copper ore and copper precipitate amounted to upwards of 210,000 tons, valued at over a million sterling, whereas in 1894 the production was only 5994, valued at £16,222. Levant is now by far the largest producer of copper in the West, its output exceeding that of all the others together. Arsenic, in spite of the rise in price, was not produced in such large quantities in 1894 as in the previous year. Levant also raises this mineral, but the bulk of the output comes from Devon Great Consols.

SIR ROBERT CRIFFEN, in his annual report on wages, raises a question of much interest to Cornwall. He compares the relatively high wages paid to the agricultural labourer in the county with the amount of his remuneration in other parts of England, and attributes the higher rate in Cornwall to the competition of the mines for the available manual labour. Sir Robert's explanation is probably correct, but he seems less clear as to the reason for the wages of Cornish miners being lower than those received for similar work in the North of England and the Midlands. The cause, however, is not far to seek. The cost of living in Cornwall is undoubtedly lower than it is in most other parts of the country, and the absence of any organisation amongst the miners is another potent factor. Opinions may vary greatly as to whether the results of Trades Unionism have been, on the whole, beneficial; but it can hardly be questioned that these powerful associations have contributed largely—in the past, at all events—to raising the standard of wages.

DOLCOATH has been so freely criticised of late, and rumours of all kinds have been flying about so incessantly, that the issue of an official report from the mine has come as quite a relief. It demonstrates conclusively that there is not the least foundation for many of the suggestions which have been made, and rather indicates a progress in both the underground development and the provision of appliances at surface, which is sure to have a marked effect on the returns within a very short time. There are, of course, still hindrances—as, for instance, the fear of an increase of water which has compelled them to suspend the driving of the 440 east of New East until the drivages of the same level east of engine-shaft and west of New East shaft have been communicated. The values given to the important points in the bottom level show that there has been no falling-off in the value of the lode. The improvements in course of being effected at surface are extensive and important, and there is no doubt that when the work has been completed it will enable the executive to increase their output and work at a reduced cost. It is also intended to sink Stray Park engine-shaft, and as this will be got down in wholly undeveloped ground, it practically means that a new mine will be opened up here.

THE annual excursion of the Mining Association and Institute of Cornwall has been delayed beyond its usual time this year, but it takes place on Thursday next. The eastern part of the county will again be visited, the rendezvous arranged being Wadebridge and the Old Delabole Slate Quarries, permission to inspect them having been granted by the directors of the company. The President of the association and institute, Mr. J. Bevil Fortescue, has intimated his intention of entertaining the party to luncheon at Wadebridge. The council of the same body have arranged for a very graceful function in the following week, when they propose to entertain Mr. J. Henry Johns at dinner, previously to his return to Johannesburg. Mr. Johns, who is the manager of Ferreira and Wenner, and the Chairman of the Johannesburg Mine Managers' Association, is the son of Captain Johns, of Dolcoath, and has been in England on a six months' leave of absence.

—The RAND EXPLORATION AND INVESTMENT COMPANY (LIMITED) JOHANNESBURG (registered under the Limited Liability Laws of the South African Republic) has opened a London agency at 13 and 14, Abchurch-lane, London, E.C. London committee and agents: Sir James D. Mackenzie, Bart., Chairman; Adolfo Weiser, Esq.; Baron J. de Terck.

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## OCHRE and LEAD MINES.

NINETEEN ACRES and a HALF at £4 an acre and 2s. 6d. a ton Royalty. At the same rate that one of the three companies offered, though then without water.

Address, H. TRIPP, Winsford, Bristol.

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The Mining and Industrial Journal of Mexico.

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RICHARD E. CHISM, M.E., Editor and Proprietor.

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Apply "D." care of MINING JOURNAL Office, 18, Finch Lane, London, E.C.

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A N Inventor DESIRES to ARRANGE with a group of Capitalists for Exploiting a Method of Treating these Ores, which shows a profit of £3 10s. per ton. No electricity; no water; no chemicals.

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COPPER ASH and any FINE COPPER SHAVINGS wanted regularly, for CASH.

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M INING ENGINEER, Mem.Fed.Inst.M.E., is OPEN to an ENGAGEMENT as Superintendent of Mines, Prospector &c. 10 years' South African experience, first-class references.

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M INING SYNDICATE (possessing large estate) REQUIRE FEW GENTLEMEN to furnish sums of £100 to £500 each. Return of money, with 200 per cent. bonus, guaranteed. Security given.

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TIN DRESSER REQUIRED, at Once, for the East. Must be able to TAKE CHARGE of Tin Crushing and Dressing Machinery. Salary, £18 per month; free second-class passage, and agreement for four years.

Apply by letter, stating age, all past experience, present employment, and give copies of testimonials or references, to J. WHITTALL AND CO., 9, Fenchurch Avenue, London, E.C.

WANTED, a SITUATION as CARPENTER or CHIEF MECHANIC, or any place of trust abroad. Highest references.

Apply, W. J. HEARD, Uphill, Linkinhorne, Callington, Cornwall.

WANTED, MINING ENGAGEMENT. Shortly leaving for Abroad. Eight years' practice in England and South Africa. Special experience in Prospecting, Erecting, and Working of Mills and Mining Plant, also in Rock-drill work. Knowledge of Surveying and Assaying. Permanent connection with firm of Mining Engineers Desired. Excellent credentials.

Apply, "A.M.I.C.E," care of MINING JOURNAL Office, 18, Finch Lane, London, E.C.

## NORTHERN WEALTH OF NATIONS (LIMITED).

WANTED, a COMPETENT MINING MANAGER, to proceed at once to the property.

Apply, with copies of testimonials, stating salary required, to SECRETARY, 5, Angel Court, E.C.

M INE MANAGER WANTED, for Gold Coast. Age not exceeding 40. Only those thoroughly competent in every branch of gold mining need apply.

Highest testimonials as to sobriety and steadiness required.

Address—

"MANAGEMENT," 11, Queen Victoria Street, E.C.

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TO BE SOLD, by PRIVATE CONTRACT, at a LOW PRICE, the CHILLATON MANGANESE MINE, near Tavistock, with easy railway access to the Port of Plymouth. The leases of 27 acres, of which not more than 20 acres have been worked, are for 21 years from March, 1891. The Mine has, in past years, brought in a large revenue, and the Manganese produced is believed to be the best in the United Kingdom.

The Mine is worked in the most economical manner, no steam engine being required, the water-power being sufficient, and the Mines being drained by gravitation.—Apply to

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## ROBEY ENGINES.

ONE 20 H.P. and one 30 H.P., good SECOND-HAND; geared for winding, pumping, or driving electric or other machinery.

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M ESSRS. BEYNON and MEAGER are favoured with instructions by Messrs. H. H. Vivian and Co. (Limited), to SELL by PUBLIC AUCTION, on TUESDAY, October 1st, 1895, at HAFOD ISHA WORKS, HAFOD, near Swansea, a large quantity of

VALUABLE MACHINERY, PLANT, SURPLUS STOCK, including Powerful Water Motor, forming a Water-power, capable under 450 head, equal to 200 b.p. &c., removed from Norway owing to the abandonment of Mines.

Catalogues in course of preparation, and may be had from the AUCTIONEERS.

Auctioneers' Office, Victoria Chambers, Swansea.

BILLITON COMPANY.

THE MANAGERS beg to give notice that on the PUBLIC AUCTION, to be held at Batavia on October 23rd, 1895, will BE SOLD about

13,000 Piculs of Billiton Tin.

A. VAN KAPPEN, Director,  
M. G. STAAL, Secretary.

The Hague, September 24th, 1895.

## NOTES FROM ANDALUCIA.

PAPER ON THE CUPREOUS PYRITES DEPOSITS OF ANDALUCIA AND ALGARVE.

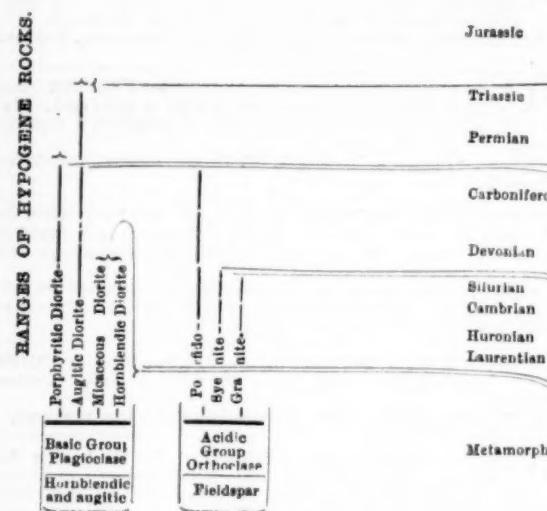
## RETROSPECTIVE AND PROSPECTIVE.

Extracts and Notes from Mining Operations and Reports on these during the past 25 years.

By WILLIAM GUTHRIE BOWIE.

Continued from page 1152.

THE following will show at a glance the geological systems present and wanting, and at the same time the range of the hypogene rocks, all as estimated by the Spanish engineers, and which it may eventually be necessary to somewhat alter:—



The following explanations will help to illustrate the reasons on which the above scheme is formulated:—

**Post-Tertiary.**—(1) Alluvial. Ferns, marshes, and clays, to which may be added sand drift. This is confined to the coast. (2) Diluvial. Yellow, red, and white sands, more or less compacted, ferruginous tobas, conglomerates of sands, chiefly quartz and ferruginous sands, chiefly round the coast and mouth of the rivers.

**Tertiary, Pliocene.**—Upper layer composed of elements of clay and lime; yellow sands with mixtures of clay and carbonate of lime, patches of plastic clay, and benches of fine sand, those containing shells being the only properly stratified portions.

Middle layer composed of sandy elements, and irregularly interstratified layers of plastic clay, sometimes alone, and at other parts mixed with some sand, accompanied with gravel and shells.

Lower layer composed of sands with carbonate of lime and quartz, specks of mica, augite, and hornblende, with mixtures of clay-slate sands, small patches of gypsum, and rough shingles of quartzite forming three distinct layers, forms the lower levels of the coast where cultivation is carried on for fruits, &c. Classification by Artesian bores, and numerous fossils as *Venus*, *Pecten*, *Ostrea*, *Balanus*, *Solen*, &c., of this age.

**Miocene.**—Sandstone composed of sand cemented with an argillaceous limestone, powdered shells, &c., apparently the ruins of an older limestone, as those of the metamorphic group, classified by fossils of *Clypeaster altus*, *Ostrea longirostris*, *Pecten latissimus*, *Pholidomya*, &c., and occupies same zones as the Pliocene.

**Triassic.**—This is reputed by some as pertaining to a member of the Lias, and is a patch on the coast from Ayamonte up to near Cape San Vicente, composed of patches of dolomite limestone and clay marl. No fossils to guide the Spanish engineers, but the Portuguese engineers have fossils that classify this to the Lias of the Jurassic. This limestone, and that of the Fortress of Gibraltar, are reported as of the same age. Rests upon the Lower Carboniferous, and confined to a narrow strip along the coast mentioned; hypogene rocks of porphyritic diorite penetrate to its base.

**Carboniferous: Lower.**—Upper division of this lower is composed of alternate layers of Carboniferous slates and greywackes, estimated to be the kiesel schiefer and jungere grauwacke of the Germans. The greywackes are gritty arenaceous rocks composed of arenaceous grits of micaceous, silicious, and feldspathic rocks with sands of hard clay slate, and apparently derived from the ruins of an extremely older system. This division of rocks, especially the Carboniferous slates, is much coloured violet from the oxidation of manganese which forms one of its constituents. This division has numerous mines of manganese, and is distinguished from the inferior one (1) owing to discordance of their strata, this giving a difference of 9° compared with the same average in the inferior. Superior being on the average strike west 22° north; inferior west 13° north, and (2) also that the slates and greywacke are lighter coloured, occupies the greater part of the south of the Sierra Morena, and is being at present further investigated; fossils chiefly *Posidonomyia*. La Laja, Medio Miel, Alosno, Valdevina, Castilejos, San Lucas, Castro Marim, and on to the West Coast of Portugal. River Piedra, between Alosno and Tharsis, around Lapilla at the Arroyos Augustino, and Fuentel Caballero, station of Millares, and San Bartolome of Tharsis Railway, and north of Tharsis, and both north and south of Santo Domingo in Portugal, have evidences of this upper layer, and in many other parts it passes under the Tertiary and into the sea.

Inferior layer of this Lower Carboniferous consists of the same alternate layers of Carboniferous slates and greywackes as in that resting upon it, called the upper layer, just described. These, however, are more compact in this, as well as altered by metamorphic agencies; is more extensive than the upper layer, and is also in further investigation, while it is in this that the cupreous pyrites masses are found. It is distinguished from that supposed to be Silurian by a slight difference in stratification, and by fossils of *Posidonomyia*, as *P. Becheri*, *P. Lateralis*, *P. Constricta*, *P. Barroisi*, *P. Gonzaloa*, *P. Cortazari*, *P. Vetusta*, *Edmondia Scalaris*, *E. MacPhersoni*, *Streblopterus Egoscuei*, *Goniatis Sphaericus*, &c. These are found, besides the places named, in the upper layer at Calañas, Caberas Rubias, Las Cruces, Rio Tinto, Aldes Ventoso, La Majada, Rio Tinto Villa de Nerva, largest of all around Rio Tinto, La Mina La Zarza in the

orchard, May Diaz, La Tiesa, Sietes Barrios, Cerro Las Pueras north of Tharsis Mines, &c. Meanwhile the Government map restricts itself to that of the most demonstrated, but still holds on to Silurian where palaeontological reasons do not decide one way or the other, but it is expected this will soon be more definitely determined, as already hinted.

**Silurian:**—Upper.—This is the only division made, and this as in the Carboniferous, from which it cannot be distinguished, consisting like this last of clay-slates and greywackes, reported by them as resting on the ancient rocks of the hypogene system in the northern parts of the Province of Huelva and Alentejo, Portugal, and in Algarve, and south-west of Huelva in metamorphic rocks, and in other parts of the Sierra on Cambrian, and as an infra-stratum between these and the Lower Carboniferous just detailed.

The character of the rock shows a diversity of clay-slates, hard, fine, but weathering to thin leaves, and the layers of greywackes as in the Carboniferous; but accompanied with some limestones and quartzites also interstratified with each other, and the slates and greywackes; these are all considerably altered owing to contact with hypogene rocks.

The reason why this is accounted Silurian is as follows:—First, owing to a slight difference of the strike of the broken and tilted rocks taken in some places in each of the Carboniferous strata and in this; the average in this supposed Silurian is west 17° north, while that of the inferior strata of the Carboniferous slates is west 13° north, a difference not at all perceptible, while they run and dip in such a conformable manner, as to be, at sight at least, south of the Sierra Alta (which is to the north of all the cupreous masses) as to be considered the same rocks, and this reason also difference of strike is further weakened when the lines or longest axes of the hypogene rocks which are in contact, and have tilted these strata, are considered, hence the slight local variations in the strike. The second reason is the greater abundance of quartzite in what is thus estimated as Silurian; and thirdly, on lithological reasons, which, as hinted, are where such metamorphism has prevailed in the matter of sedimentary rocks not very determinate or secure so as to safely fix the geological system to which they belong. While, lastly, there are some fossils all to the north of the Sierra Alta as follows:—Some incisive *Nereites*, then a variety of *Graptolites*, *Nereites Sedgwickii*, *N. Ollivanti*, *N. flexillis*, all in and around Sierra Alta, Barrancos, and Encinasola, but very uncertain; also reported to be in a patch near Santo Domingo some *Nereites*, *Graptolites*, or to use the name *Monograptus*, according to Geinitz, *Monograptus Nilssonii*, *M. latus*, *M. linnsei*, *M. convolutus*, *M. priodon*, *M. tenius*, *Rastrites peregrinus*, *Diplograptus palmeus*. These are found also in and around Sierra Alta, Barrancos, Encinasola, Buena Vista in this last, Roche de los Molinos de San Bartolome de Cumbres, prado Pero Gil, north of Buena Vista towards Encinasola, Arroyo de Valquemado; La Mona, between Cortegana y Encinasola, in River Murtiga and vegas Hermenegildo, Cumbres de Enmedio, Los Monchales de Puerto del Lanchar, Casa de Cimajo and Carranco de Cimajo, and Los Castanos in la Riviera Hinojales. Students will be able to classify these to the Silurian formations, upper and lower. The doubly-serrated forms are, according to Murchison, chiefly characteristic of Lower Silurian rocks, while the one-sided species extend from this to the Upper Silurian rocks; hence seeing that *Graptolithina* are truly confined to Silurian rocks, then where found is Silurian, and here they are *Monograptus*, and hence as in excess will demonstrate these places to be Upper Silurian, but it will be observed this is only in a zone far north of these mines of cupreous pyrites, and crossing west into Portugal at Barrancos; while south from the granite bosses and metamorphic rocks that form the highest mountains from Zafra to Ficala, in Portugal, there is not a single Silurian fossil found, for although *Nereites* are reported as being found near Santo Domingo, yet this fossil is of so uncertain a nature, and ranges in suitable strata from the Cambrian upwards, that together with the doubts as to being even soft and fleshy forms of *Graptolithina*, they become of little utility to be able to classify these southern portions by themselves as of Silurian seas.

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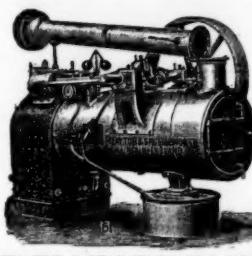
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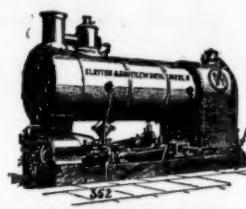
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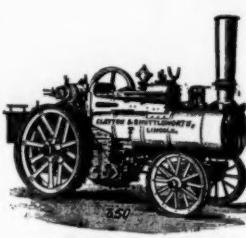
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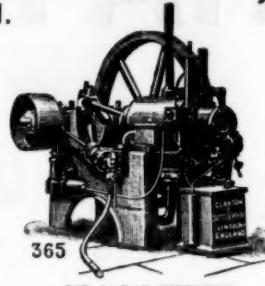
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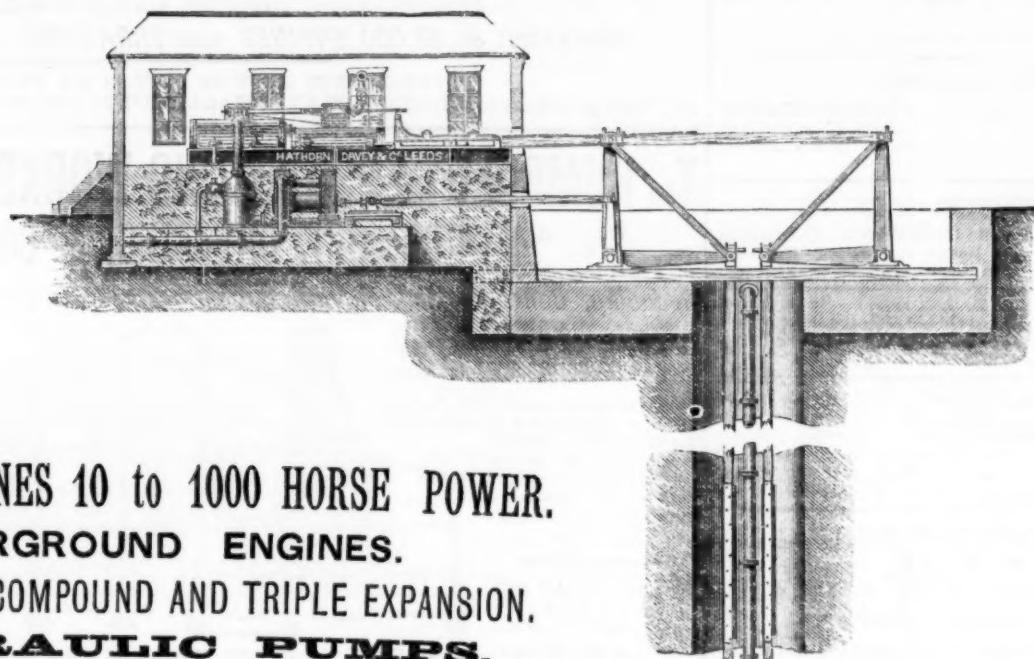
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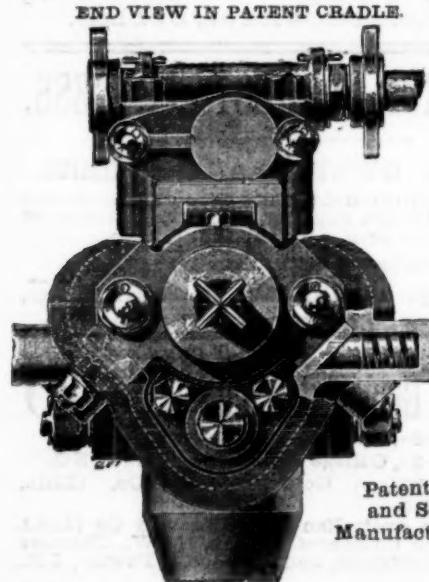
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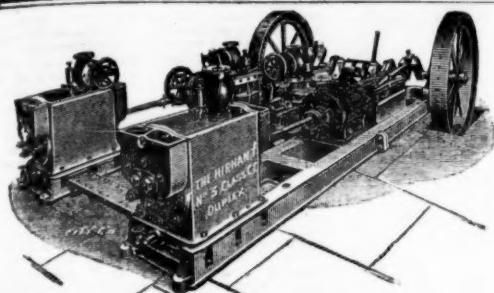
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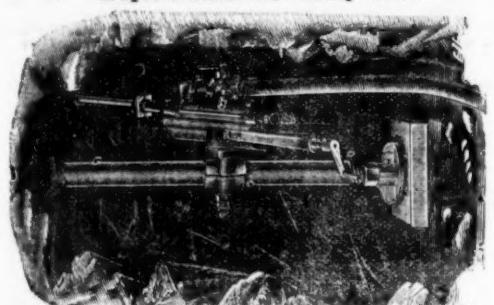
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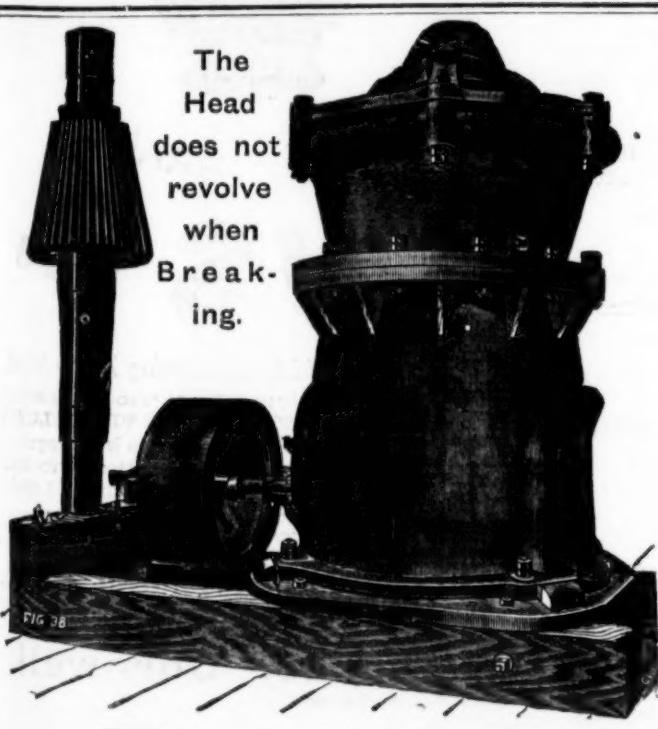
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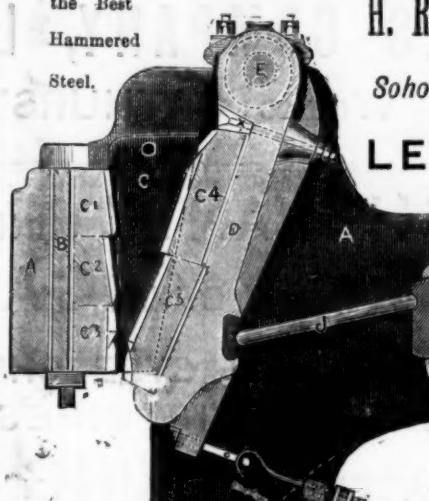
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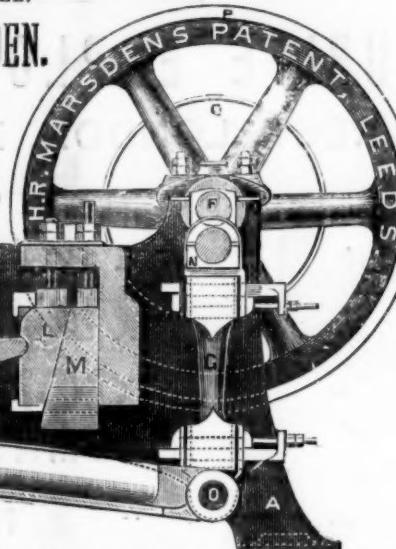
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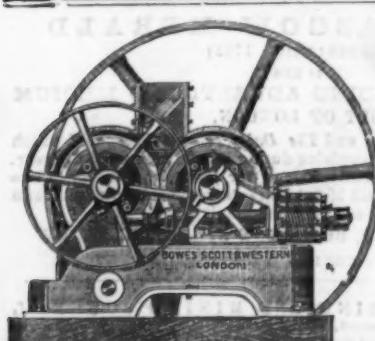
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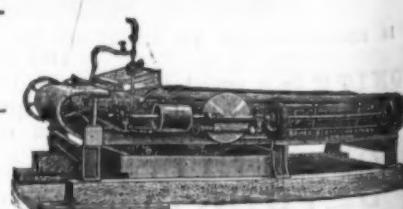
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